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REPORT

ON THE

OPERATIONS OF THE AGRICULTURAL DEPARTMENT,

MADRAS PRESIDENCY,

FOR THE OFFICIAL YEAR

1888-89.

MADRAS:
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1890.

PROCEEDINGS OF THE BOARD OF REVENUE

(Revenue Settlement, Land Records and Agriculture).

Mr. Clogstoun.

Read—the following G.O., dated 23rd August 1890, No. 685, Revenue :—

Read—the following Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), dated 22nd August 1889, No. 412-A. :—

Mr. W. Wilson.

Resolution—dated 22nd August 1889, No. 412-A.

The Board resolve to submit to Government the following review of the operations of the Department of Land Records and Agriculture during the year 1888-89.

2. The department remained during the whole year in charge of Mr. Wilson. The Assistant Director, Mr. Benson, was absent on privilege leave for three months, from August to November, during which period the Sub-Assistant Director of Agriculture, Mr. Subba Row, was in temporary charge of his executive duties. Mr. Hazelton, who joined the department shortly before the close of the previous year, was in charge of the cattle disease prevention branch throughout the year. Mr. Shunker was on duty in connection with pony-breeding operations in Coimbatore and the Nílgiris throughout the year.

Under instructions from Government, Mr. C. K. Subba Row, Second Assistant Lecturer in the College of Agriculture, was appointed in July to the newly-created post of Sub-Assistant Director of Agriculture, in which his chief duty is to assist the Inspector of Cattle Diseases in supervising the work of the Stock Inspectors in the mofussil. The sanction of the Secretary of State was obtained during the year for the continuance of the appointment of Deputy Inspector of Cattle Diseases for one year, till September 1889, pending decision upon the Government of India proposals for the formation of a Civil Veterinary Department. A further extension of this period has since been applied for, pending the issue of the orders of Government on the recommendations of the Agricultural Committee.

3. The work of the executive officers of the department will be duly noticed below in their proper order, but in reference to the remarks of Government in their order No. 872, dated 18th December 1888, the Board would point out that much of that which falls to the Assistant Director, in what practically is his capacity of Personal Assistant and Secretary to the Director in matters agricultural, cannot be definitely specified.

During the first three months of the year Mr. Benson was busily engaged in analysing the statistics received from Kurnool and in writing up the results, besides being employed on the preparation of the annual administration report of the department. During July he proceeded on a tour of inspection and observation in the Cuddapah district, where the Agricultural Inspectors were working in connection with the agricultural and famine analysis of the district, and from August 13th to November 12th was, as already stated, absent on privilege leave. On his return to duty, the preparation of information for the Agricultural Committee, together with one or two short tours for special purposes, occupied him till Christmas: he was also called upon to arrange for and superintend the special trials of ploughs and sugar-mills at Saidápet during December. In January, he was occupied with visits of inspection to the stock depôt, Hosúr, to Salem in connection with the show, and duty at the Bellary exhibition; the last-named duty continued into February and included the superintendence of a special exhibition of sugar-mills at Hospet. This was followed by duty at the Salem show, at which he had executive charge of the yard, and the settlement of arrangements for the closing of the stock depôt at Hosúr and the dispersion of the Government breeding stock. Attendance on the Agricultural Committee and the routine duties of his office occupied the rest of the year. The details of the duties under his charge fall for notice in various parts of this report and need not be further adverted to here.

4. In September last, the Government considered it expedient to appoint a committee of official and non-official gentlemen to inquire into the constitution and working of the department, with a view to rendering it more efficient and generally useful to the agricultural community. The committee sat during the later months of the year and their report has been laid before the Government.

I.—The Organization and Maintenance of Village Records.

5. The working of the revised manuals of village and taluk accounts, which were brought into force in 1887-88, is reported to have been satisfactory. Some of the forms of accounts have been further simplified during the year under review. These accounts furnish a complete record of the information required for the correct ascertainment and collection of the Government demand and for the statistical tables prescribed by the Government of India. They furnish materials also for the agricultural survey of each village contemplated by the Government of India in their resolution communicated with G.O., No. 3704 Mis., dated 20th December 1881. The correct maintenance of these records depends, of course, on the efficiency of the village establishments, chiefly the curnams or accountants, and of the agency employed for their supervision, viz., the Revenue inspectors.

As the Government are aware, much has been done during the past five and twenty years to improve the position of the village establishments by the gradual substitution of fixed salary payments for the precarious remuneration derived from grain fees and inams (assignments of lands or the revenue payable on them). The rule hitherto followed has been to carry out the improvement in each district only after a revision of assessments was completed by the Settlement Department. In G.O., dated 11th July 1888, No. 479, however, it was decided to carry out at once, without waiting for the completion of the settlement, a preliminary revision of the establishments in the Bellary and Anantapur districts where the reform was urgently called for. Proposals for the former district have been approved by Government; those for the latter are under preparation. Proposals for two settled districts, Coimbatore and North Arcot, were sanctioned during the year. Those for South Arcot, where settlement operations are in progress, and for Madura, where the work has just been completed, are nearly ready. This will leave only five districts, viz., Ganjam, Cuddapah, Tanjore, Vizagapatam and Malabar, in which the revision has to be taken up.

6. It has been pointed out in previous reports that the agency employed for the supervision of the village records is inadequate and insufficiently paid and that

proposals for improving it as well as the taluk establishments have long been under the consideration of the Government of India. The agency in question at present comprises 518 Revenue Inspectors or, on the average, about one man for every 6,000 holdings, including inams, &c.; or, put in another way, one man for every 103 square miles of arable land excluding zemindari and whole inam villages. Nearly two-thirds of these officers are paid only Rs. 20 to 25 per mensem and none of them get travelling allowance, though they have to keep a pony or a cart to travel with. It was proposed by the local Government to increase the number and pay of these officers as shown on the margin and also to improve the taluk and divisional establishments. The Government of India, after a protracted correspondence, accepted the proposal in its entirety, but the Secretary of State did not consider that "the necessity for the re-organization was so great as to outweigh the objections to incurring any expenditure which could with prudence be avoided or postponed," and has accordingly declined to sanction it for the present.

Present Scale		Proposed Scale	
No.	Pay.	No.	Pay.
	RS.		RS.
202	20	371	35
156	25	286	40
154	30	*5	50
3	40 } *	—	—
3	50 }	662	
518			

* Nilgiris and Wynaad.

G.O., dated 9th August 1888, No. 551.

Of the Revenue Inspectors now existing, some 300 have passed the Survey test prescribed in G.O., dated 8th July 1885, No. 800, Revenue. This number includes 96 who passed the test in the year under report.

II.—The Analysis of Districts with reference to their security from Famine.

7. *Kurnool.*—The statistics compiled on the tractwar plan for this district were received early in the year and the analysis of them was completed by the end of June. The results, when reviewed in the Board's office, showed considerable variations from the ordinary revenue accounts, which could not be entirely reconciled. The time occupied in attempting to reconcile these variations prevented the submission of the analysis till after the close of the official year, but it was laid before the Government with Board's Proceedings, 29th May 1889, No. 262. In form and substance this analysis partakes more of the character of an agricultural analysis than of a famine analysis of the kind indicated by the Government of India, and to meet the views of that Government it will, in the Board's opinion, be necessary to carry out in Kurnool the system of analysis village by village referred to in paragraph 7 of the report for 1887-88, and adopted in all other districts.

8. *Cuddapah.*—During the greater part of the year six Agricultural Inspectors were on duty in this district and were engaged in (1) examining and checking a special return of the live and dead stock of the country; (2) checking and completing a special record of well irrigation and subterranean water-supply; (3) collecting information as to agricultural practices and systems. In the first two items of their work they were aided by the Revenue Inspectors, to whom was allotted the examination of the returns in 25 per cent. of the villages of their circles. At the end of the year under report the work was completed in three taluks, and was nearly finished in two more. The village registers ordered to be prepared for all villages were completed in 878 of the 1,340 villages of the district on the 31st March. A special establishment has been appointed to check and tabulate the figures in these registers under the supervision of the Tahsildars, to whom this duty is now assigned, instead of to the Assistant Director as was at first proposed. None of these registers were received in the office of the department during the year for scrutiny by the Assistant Director and the method of doing this and the extent to which it is to be carried are at present under consideration.

9. *Other districts.*—The preparation of the new statistical registers for each village was ordered before the close of the year 1887-88, and during the year under report

forms were supplied, and the registers are reported to have been completed in the different districts as shown in the following table.

Districts.	Number of villages in the district. Total, Government and inam.	For which the registers have been Completed.	Partially prepared.	Remarks.
Ganjam	1,528	..	15	No progress was made until March as the village officers were busy with jamabandi work. Progress only in Berhampore and Chicacole taluks.
Vizagapatam	261	..	32	
Godávari	1,062	66	424	Completed in Peddápuram and Cocanada divisions only.
Kistna	1,359	301	558	Completed in Palnád, Narsaraopet and Vinukonda only.
Kurnool	789	..	204	
Bellary	1,528	108	796	Completed in Alúr taluk.
Anantapur	959	336	486	Completed in Tadpatri, Anantapur and Hindupur taluks.
Cuddapah	1,340	878	456	Completed in all taluks except Sidhout, Kadiri, Váyalpád and Madanapalle.
Nellore	931	..	116	
Chingleput	1,767	..	581	
North Arcot	1,756	..	647	
South Arcot	3,214	..	..	No progress reported.
Salem	2,986	709	67	
Coimbatore	1,507	..	100	
Trichinopoly	1,401	..	1,019	
Tanjore	3,661	310	..	Begun in Negapatam and Nannilam taluks only. No further information.
Madura	2,818	..	..	No material progress made.
Tinnevelly	1,065	..	284	
Nílgiris	48	..	23	The preparation of the registers for South-East Wynaad has been dispensed with.

10. The preparation of these village registers, covering as they do a series of past years, and their maintenance in the future will, the Board consider, fully meet the first requirement specified by the Government of India, when indicating the duties of the Agricultural Department, viz., it will provide 'a system under which a thorough knowledge of the circumstances of every village may be maintained from year to year,' for the particulars recorded in these registers will provide data for a very full 'analysis of the rural economy and condition of each village.' The next step pointed out by the Government of India as necessary is, however, one of a very different nature. It is no less than a complete analysis of these registers with a view to investigate the condition of every part of the province as to its security from agricultural difficulties or distress. It has been laid down that in the prosecution of this analysis 'no general assumption is sufficient,' and that a detailed investigation of every part of a province proceeding from the village as a unit is imperative, the primary objects being to determine in what degree the agricultural outturn of its several parts is secure and to ascertain the causes of any agricultural difficulties that may exist. As was observed by the Director in his note recorded in G.O., dated 24th March 1887, No. 319, the work is a gigantic one and could not possibly be completed in any reasonable time unless an enormous establishment were maintained to carry it out. Besides, when completed, it would become out of date in the course of a few years and have to be revised at least once in five or ten years. The Government of India have, however, pointed out more than once that the analysis should be 'gradually evolved and perfected by the local and existing establishments from figures and facts derived from the statistical papers and reports annually received for each village as well as from records already existing, and that it should be worked out by village machinery supervised by Revenue Inspectors and the district staff and ought not to require any special establishments controlled by independent officials.' The Board conceive that any special and separate analysis of the kind described by the Government of India could not possibly be effected in this Presidency without the help of special and large

establishments, and are of opinion that the only way in which the purpose of the Government of India can be attained without such special establishments is to take advantage of the fuller and more accurate knowledge of villages and districts that the recently adopted system of village accounts for famine analysis purposes will year by year give, and to set forth in the yearly administration reports of each district the more salient features of its economic condition and of its protection from or liability to famine. This might be effected by calling upon Revenue Inspectors to report annually on their ranges, Tahsildars on their taluks, Divisional officers on their divisions and Collectors on their districts. Supplemental to this, a statistical atlas of the kind recently issued for Bombay might be prepared from data already available and be corrected at intervals as information becomes more extended and more accurate.

III.—System of Collection of Revenue and Rental in precarious tracts.

11. A general revision of the kistbandi (scale of instalments) was carried out during the year with the sanction of the Government of India. The guiding principle of the revision was that kist should follow crop. In some districts the first instalment has been put forward from December to January and in a few to February. Except in Tanjore, where the existing scale of instalments has been found to work well, the number of instalments nowhere exceeds four and does not begin, except in two districts, before December, by which time the harvest of the early crops is generally completed. In South Canara and a portion of Malabar there are only three instalments in force.

IV.—Measures of Protection.

12. *Communications.*—The only work of general importance undertaken during the year was the commencement of the Villupuram-Dharmavaram Railway, which will open up a large section of country in the North Arcot, Cuddapah and Anantapur districts, which suffered severely in the famine of 1876—78, and which, by its connection with the Nellore-Tirupati Railway, will open out additional surplus food-growing areas to these tracts. The extension of the Nizam's State Railway to Bezváda was completed during the year and progress was made with the Bellary-Kistna State Railway towards the same place. A reconnaissance of the proposed East Coast line from Bezváda to Bengal was made during the year, and the route most favorably reported on.

13. *Irrigation.*—The Rushikulya works in Ganjam and the Periyár project in Madura were in progress during the year. The former project was taken up in 1884-85, but, owing to financial exigencies, the work was stopped in September 1888. It was resumed, however, in November of the same year when distress began to show itself in many portions of the district. It is calculated that these two works, when completed, will afford effective irrigation to about 101,000 acres and 120,000 acres, respectively.

14. *Minor Irrigation Works.*—According to the returns received from Collectors a very large proportion—about six-sevenths of the whole—of these works appear to be in fair order as shown below :—

Class.	Tanks		Channels		Total	
	In repair.	Out of repair.	In repair.	Out of repair.	In repair.	Out of repair.
Works irrigating from 100 to 200 acres	2,521	390	1,540	83	4,061	473
Do. from 50 to 100 acres ..	3,979	519	1,502	143	5,481	662
Below 50 acres	17,498	3,686	6,701	746	24,199	4,432
Total ..	23,998	4,595	9,743	972	33,741	5,567

As a matter of fact, however, many of the tanks are greatly silted up and require to be filled twice before the irrigable area under them can be fully cultivated. In the

year under report a larger sum than usual was allotted for their repair and a larger proportion of the allotments spent also as shown below :—

Period.	Allotment.	Expenditure.	Percentage of expenditure to allotment.
	RS.	RS.	
1886-87	2,92,181	2,60,000	89
1887-88	3,00,000	2,75,000	95
1888-89	3,75,000	3,65,233	97

15. *Advances to Agriculturists.*—The administration of the allotments made for advances under the Land Improvement and the Agriculturists' Loans Acts is not vested in the Agricultural Department; such advances are dealt with by the Land Revenue Department of the Board of Revenue. Revised instructions and rules for the grant of loans under the latter of the two Acts were issued during the year and the Government, having regard to results in Coimbatore and Anantapur, pointed out how much might be done by the personal influence of district officers to overcome the unwillingness or apathy of the ryots in applying for loans. The following table shows the amounts of the advances made under the two Acts during the past five years:—

Year.	Land Improvement Loans Act (Act No. XI of 1883).		Agriculturists' Loans Act (Act No. XII of 1884).	
	Budget allotment.	Actual loans.	Budget allotment.	Actual loans.
	RS.	RS.	RS.	RS.
1884-85	2,00,000	34,053	..	..
1885-86	2,00,000	2,925	..	..
1886-87	2,00,000	8,057	1,00,000	19,100
1887-88	2,00,000	77,507	1,00,000	40,034
1888-89	2,00,000	1,30,622	1,00,000	36,772

16. *Distress in Ganjam.*—In October last, consequent on a failure of the south-west monsoon rains, and on a subsequent general failure of the crops dependent thereon, prices rose suddenly in Ganjam by nearly 20 per cent.; there was a scarcity of water, and famine was apprehended. Local works were immediately put in hand by the Collector, and concessions as to the collection of land revenue were made. The Honorable Mr. J. H. Garstin, then one of the Commissioners of Land Revenue, but who had been nominated to a seat in Council, was deputed to visit the district and to report on the exact condition of it. The north-east monsoon brought a copious fall of rain and revived hope, but the rain subsequently ceased altogether resulting in a poor outturn of the crops. Mr. Garstin's report showed that the condition of the district, though not serious at the time, might become so if imports failed to meet local demands for food. The Rushikulya project works and the Gopálpur canal were the first reopened and the last begun to provide work for distressed persons, and numerous new roads and other works have since been undertaken with the same view. The administration of relief operations was virtually carried on by Government direct from the first and it seems unnecessary to refer to the subject more fully here.

17. *Arboriculture.*—This subject is not controlled by the Agricultural Department, the Forest Department, to whom all such operations are entrusted, being placed under the Commissioners of Land Revenue. It may be noted, however, that, at the instance of the department, the *Pongamia glabra*, the leaves of which are largely used in the sub-division taluks of Cuddapah as a manure for wet crops, was removed from the list of reserved trees and the continuance of a long-established custom by which the people obtain a supply of green-manure from this source was sanctioned and maintained.

18. *Arts and Industries.*—No tours to inquire into the condition and prospects of indigenous arts and industries were made during the year by Mr. Havell, Superintendent of the School of Arts, on behalf of the department and, owing to want of

funds, the prosecution of further inquiries has been stopped. Mr. Havell has undertaken the preparation of a complete account of the art manufactures of the Presidency to be published in the *Indian Art Journal*, but he has not as yet published any articles on the subject.

19. *Metals and Minerals.*—The appointment of Government Mineralogist, sanctioned, temporarily, in 1885, lapsed during the year on the termination of the engagement of the first incumbent, Mr. Bosworth-Smith. During the year Mr. Smith submitted a detailed report on the Kolar gold field and its southern extension which has been published, and he was also engaged for some time in arranging the mineralogical collections in the Government Central Museum. The appointment he held originated in a scheme which had for its object a careful mineralogical survey of the Presidency and the creation in the Central Museum of a perfect index of the mineral wealth of the country. The appointment is now to remain in abeyance.

20. The rules in force in the Presidency for prospecting and mining for gold, minerals and precious stones were carefully considered during the year and it was decided that no modifications in them were called for.

21. *Soapstone.*—Replies to inquiries instituted at the instance of the Secretary of State and the Government of India as to the supply of *steatite* suitable for economic purposes were received during the year and showed that samples obtained from certain places in Kurnool, Bellary, Anantapur, North Arcot and South Canara would be useful for gas engineers. The stone is reported to be fairly abundant in Bellary, Kurnool and Anantapur. The samples obtained were forwarded to the Government of India.

V.—Agricultural Experiments.

22. *Farms.*—There is at present no Government farm in the Presidency. A portion of the old Saidápet farm still remains in charge of the department, but arrangements have recently been made for handing over the greater portion of the area to other departments and for other purposes, and proposals for the utilization of the remaining area will shortly be laid before the Government.

23. *The Madura Farm* continued to receive assistance from the department during the year, but at the close of it the grant was withdrawn. Proposals for the maintenance of the farm as a part of a technical training institution were before Government in another department during the year, but it is not known what orders have been passed on them, and the connection of the department with the farm has now ceased. The farm was inspected in December 1888 by the Assistant Director, who submitted an unfavorable report on its condition, but the withdrawal of the grant made by Government of the salary of the Superintendent rendered any action thereon unnecessary. The Government stock that had been lent to the farm was disposed of when departmental cattle-breeding operations were stopped (*infra*, paragraph 43).

24. *Experiments with crops.*—The most important experiments conducted during the year were those carried out under the supervision of Mr. H. Caine, professional tobacco curer, at Védasandur in the Madura district. Mr. Caine arrived in the Presidency on an engagement for eighteen months at the end of August 1888, and it was at first proposed that experiments should be commenced in the Kurnool and Godávari districts, chief attention being given to ryot-grown tobacco in the last-named district. On Mr. Caine's representations after his arrival in the Presidency, however, he was sent to Védasandur, and arrangements were made whereby a sufficient amount of tobacco should be grown under his own supervision to allow of adequate experiments in the drying and curing of the leaf being made by him. These experiments are still proceeding and show every prospect of successful results; as soon as the process of fermentation and curing is complete, arrangements will be made for determining, both in the local and the English market, the value of the produce treated by Mr. Caine and for comparing the results with those usually obtained by the ryot with his ordinary processes. Mr. Caine's experiments were chiefly devoted to shade-curing cigar tobacco of a quality superior to the ordinary product, but he also fire-cured a small quantity of "bright" tobacco, which also will be sent to England for valuation. A special report on these experiments will be published shortly.

Mr. Caine was also deputed to the Godávari during an interval when the drying of the leaf grown by him at Védasandur was complete and further curing could not, on account of the state of the weather, be proceeded with. He has submitted a report on the prospect of improving the tobacco grown on the "Lankas" in that district, which indicates that the prospect is hopeful as far as the production of "Cavendish wrappers" and "bright smokers" is concerned; there appears to be little chance, however, of producing there cigar tobacco of good quality. It is proposed during the current year, to make experiments with Lanka tobacco for "Cavendish wrappers" and "bright smokers."

During his visit to the Godávari, Mr. Caine was directed to give his attention to the tobacco parasite *orobanche nicotiana* (bodu), and he has submitted a special report thereon, which has, with other papers on the subject, been published for general information.

25. The result of the experiments at Madura and in Kurnool alluded to in the report for 1887-88 as then being carried out under written instructions left by Mr. Caine on his first visit to the Presidency was unfavorable, evidently owing to the difficulty inexperienced persons have in carrying out delicate manipulations when only guided by such instructions.

26. Some experiments made under the direction of revenue officers with Sumatra tobacco seed received from the Government of India at Dhárápuram and Bhaváni in the Coimbatore district and at Madura proved unsuccessful, the failure being attributed either to unsuitability of the variety to the local conditions obtaining, or to defective supervision. It is proposed to make further experiments with this and other fine varieties of tobacco under Mr. Caine's personal supervision.

27. The system, which was so largely followed in earlier years, of distributing small packets of seeds of exotic or valuable crops for experimental growth by ryots under the supervision of Land Revenue officers has been given up for the last two years, except in a few rare cases. The only seed purchased during the year for distribution was a small quantity of eucalyptus seed obtained in Australia. Some plants also of the *Erythroxylon coca* were obtained from the Madras Agri-Horticultural Society and distributed to a few districts. This last-named plant was reported by the Government Botanist to be likely to succeed in any part of the Presidency at an elevation of from one to four thousand feet on fairly good soils, with a rainfall of from 30 to 50 inches, and 120 plants were accordingly distributed to Vizagapatam and Ganjam, North Arcot, Cuddapah and Tinnevelly. So far as reports have been received, the plants appear to have done fairly in most places where they have been tried, but it is yet too early to report results.

28. The revival of interest in the introduction of eucalypti suitable for growth in the plains of the Presidency was due to a report received from Mr. M. R. Weld, C.S., on the subject. Numerous experiments were made about the year 1884 in this direction, and though, in most cases, these turned out unsuccessfully, it was thought that, in carefully selected localities, where a reasonable amount of care and supervision could be secured, further efforts should be made to introduce varieties likely to flourish in the plains. A considerable amount of seed was obtained from Australia and has been distributed, but it is as yet too early to report results.

29. A further supply of eighty bushels of seed-barley, received from England shortly before the commencement of the year, was forwarded to the Nílgiris for distribution and sold to applicants at Rs. 2 per bushel; some applications had to be refused because the stock was exhausted. The results of the sowings were, however, unsatisfactory, the failure being due to an unfavorable season. The proposed institution of field prizes for crops grown from the seed was unavoidably postponed chiefly because the season was unfavorable. Fifty bushels of oats were also received for experiment on the Nílgiris during the year, but as they did not reach the hills till August the seed was too late for the season's sowings.

30. Further reports on the experiments with the *Hungarian Millet*, referred to in the last report, show that the crop failed to give satisfactory results almost everywhere. As the department is at present equipped, it does not appear advisable to attempt further experiments with this or other similar exotics.

31. An inquiry made during the year as to the necessity for the more effectual protection of *Insectivorous birds* in the interests of agriculture led to the conclusion that there was not such wholesale destruction of birds as to call for special legislation for their protection, but that it was desirable to extend existing enactments to protect special birds during certain seasons.

32. *Economic entomology.*—As in previous years specimens of several kinds of insects attacking crops were forwarded to the India Museum, Calcutta, for identification; but at present little can be done towards dealing with insect pests. A supply of London purple, with a pump for applying it, was received from the India Museum, Calcutta, during the year, with a request that it might be tried. The assistance of several officers* has been secured in this matter, and these arrangements are the only possible ones at present to this end, but it is entirely problematical when an opportunity may arise for making the desired experiments.

* Government Botanist.
Principal, College of Agriculture.
Honorary Secretary, Agri-Horticultural Society, Madras.

33. Considerable difficulties arose in starting the experiments in *Sericulture* alluded to in the last report, and which were to be carried out for the department by a special officer under the control of the Conservator of Forests, Southern Circle. The special officer selected was not placed on the duty assigned to him till the beginning of September, and amongst the instructions given to him at the time by the Conservator was an incorrect one, viz., that he was to rear silk-worms. Besides, the season for collecting cocoons had then passed, and the special officer devoted his attention to the rearing of silk-worms in two forest reserves.

The instructions were revised, and during the season now closing the collection of cocoons through hill-men and jungle tribes has been receiving attention. A special report has been recently submitted, and it is intended to hand over the work to the Forest Department entirely.

34. A weed, locally known as the "Kukoti voyet," which has been found to be very inimical to indigo in the Vizagapatam district, was identified by the Government Botanist as the *Cleome Chelidonii*. That officer states that the only way to get rid of the pest is to extirpate it before it comes into flower, but the ryots are apathetic and allow it to flourish and seed and extend itself year by year.

35. *Economic products.*—In reply to requisitions from the Government of India, information regarding a great variety of economic products has been collected and forwarded for the use of the Reporter on Economic Products, and full details of the various processes followed in the manufacture of sugar and jaggery have been furnished for the use of Messrs. Thomson and Mylne of Beheea. Arrangements have been made for furnishing the collections of fibres called for by the Secretary of State for the Imperial Institute, and some specimens have already been forwarded.

Some interesting information regarding the uses and value as a fodder plant of the *Erythroxylon monogynum* was collected and published during the year.

A suggestion first made to the department in 1885 that salt "bitterns" might be of value for agricultural purposes, and that the valuable bye-products of the mother liquor might be extracted for the same purpose, was revived during the year and led to a considerable correspondence, with the result that it appears that where the cost of the bitterns is not prohibitive they may be used for mixing in manure heaps, and that the profitableness of extracting the bye-products in India has yet to be determined.

36. *Exhibitions*—were held at Bellary and Salem respectively during February last and were on the whole successful. They were organised on the same plan as had been adopted in previous years, but the prize lists were modified as the result of experience. The cost of the Bellary show was Rs. 4,174-15-5, of which amount Rs. 3,157, or 75 per cent., was given away in prizes; that at Salem cost Rs. 5,897, of which 66 per cent., or Rs. 3,911, was given away in prizes. At both shows the arrangements made showed considerable improvement over those of previous years.

The system and policy of mofussil shows as now held is under the consideration of Government with reference to the report of the Agricultural Committee.

37. In compliance with a communication from the Government of Bombay a committee was formed during the year for the purpose of obtaining exhibits of the arts and manufactures of the Presidency for exhibition at Poona, and a considerable collection was, it is understood, forwarded, but the department has no definite reports on the point. A proposal made by the Poona exhibition committee that the exhibits forwarded to Poona should be permitted to remain there for the purpose of forming part of the Industrial Museum now under formation has recently been met by a general refusal on the part of the exhibitors from this Presidency to co-operate, owing to the want of courtesy with which they say they have been treated by the committee. Further action in the matter has been transferred to the Superintendent, Central Museum.

38. An exhibition organised by the Government of Mysore was held at Mysore during October and was visited by the Director, the Inspector of Cattle Diseases and the Sub-Assistant Director. The Inspector of Cattle Diseases briefly refers in his annual report to the show of live-stock there as disappointing.

39. *Implements and Machines.*—It has hitherto been found almost impossible to make satisfactory arrangements for the full and proper trial of implements and machines in connection with mofussil shows. Having regard to this difficulty and to the recommendations of the judges at the Salem and Bellary shows of 1888, the Government offered to public competition considerable special prizes for low-priced ploughs and sugar-mills and water-lifts suitable to local conditions and which showed on trial marked efficiency and commendable improvement over the implements now in use. The offer was fairly responded to. An offer of similar prizes for a cotton gin and an oil-mill failed to produce competitors. Arrangements were made for the trial of the ploughs and sugar-mills by an independent committee and they were conducted at Saidápet in December last. It was not found possible to arrange during the year for the water-lift trial owing to the difficulty of finding a suitable site with a lift fulfilling the conditions of trial.

40. The system of sending a party to travel slowly through the mofussil exhibiting ploughs and other implements at work to the ryots was continued during the year, the show party visiting the South Arcot, Trichinopoly, Salem and North Arcot districts. The show was fairly successful and caused consid erable demand for several patterns of the smaller sorts of ploughs, orders for over 300 having been given to the agent of a firm which accompanied the show. A similar show party assisted by the department was sent out by the Madura Farmers' Club, and from the reports received it would appear that ryots are often unable though willing to purchase improved ploughs because in the first place manufacturers will only deal for cash with mofussil buyers and because in the next the ryots are often not aware of the facilities provided by the Agriculturists' Loans Act for obtaining the necessary funds for the purchase of agricultural implements. The system of travelling shows has now, on the reduction of the budget grants of the department, been necessarily given up, but, though as yet only a small portion of the Presidency has been in any way touched by them, it is hoped that private enterprise will carry on the work. Messrs. Massey and Company sent a party recently into South Arcot at their own expense and every plough that has been sent out and is used is in itself an effective show. Considerable progress continues to be made in the introduction of improved ploughs, the demand naturally varying for different parts of the country according to the requirements and customs of the localities to which purchasers belong.

The interest aroused by Mr. Swami Aiyangar's show in Tinnevelly during 1886 led to the commencement of a local manufacture of small light ploughs. Specimens of these ploughs were obtained during the year and were found on trial to do fair work. A report from the Tinnevelly district shows that the ploughs sold in previous years in the district are not fully utilised, but the persons who have used them speak fairly of them.

41. In the matter of sugar-mills also considerable progress has been made, and iron sugar-mills are now to be found at work in most of the districts where cane is raised to any considerable extent. In this matter the action of the department was confined to arranging for a show of the "Beheea" and "Shank's Patent" mills in the Coimbatore district during August and to securing for the local agents of the last-named mill the assistance of local Revenue officers in exhibitions of it, which they proposed to conduct in various parts of the Presidency. After the conclusion of the Bellary show, a working-show of nearly all the sugar-mills now on the market in this Presidency was organised by the Assistant Director at Hospet. Altogether iron sugarcane-mills have taken firm hold in this Presidency and the adoption of them shows great progress since the first specimen was introduced at Saidápet and Bellary about ten years ago.

VI.—Cattle Breeding and Veterinary Establishments.

42. *Stock Breeding.*—The operations conducted by the department in this matter were, under the orders of Government, brought to a close during the year. The following extracts from a note prepared by the Assistant Director regarding the Stock Depôt at Hosúr give a short résumé of the history of that institution :—

" *Genesis.*—In their review of the annual report of the department for the year 1883-84 the Government remarked that a policy of distributing large numbers of superior stud bulls and rams in any one district would result in very perceptible benefit in no long period of time. This led to inquiries being made as to the feasibility of starting stock farms for cattle and sheep in different parts of the Presidency. A little later on in 1885, the Government called for a scheme for starting a *stock-breeding* farm. This led to a report being made on the results of the inquiries instituted early in the year which showed that it was only in the marginally-noted districts that there was a probability of obtaining satisfactory sites for such a farm. Of these, Malabar, Vizagapatam, Kurnool and Coimbatore were struck out chiefly on account of the unhealthiness of the localities selected, and of all the chosen sites one suggested in South Arcot was thought to be the most suitable. At the same time the best methods of improving farm stock were discussed, and two plans were indicated as being possible :—

Vizagapatam.	Salem.
Kurnool.	Coimbatore.
Madura.	Malabar.
South Arcot.	

(1) To undertake direct breeding operations.

(2) To purchase selected sires and to place them in selected tracts for the service of the ryots' cattle.

The former was rejected on account of the time and expense which would be involved in carrying it out. The second scheme was approved, and orders were given for carrying it out. It involved, besides the establishment of a central depôt for keeping young stud bulls at, the deputation of a competent officer to the districts where specially good cattle are to be met with, including Mysore and Bombay, to purchase a number of good sires as well as a few promising heifers. The purchased bulls were to be kept at the depôt, which it was thought might be established in South Arcot, to be, when of proper age, drafted out to selected districts or tracts. The use of these bulls was to be free and encouraged by the offer of large prizes for their progeny and the spreading of sires in driblets over the country was deprecated.

" As to sheep breeding, it was suggested that somewhat similar lines might be followed, but that it would be necessary to breed sires by crossing indigenous ewes with imported rams.

" 2. The site proposed in South Arcot, however, was found to be unsuitable. Some further discussion thereupon ensued as to the aims to be pursued, and the Government insisted that even in those parts of Nellore and Salem where very good draught cattle are to be found, it would be a mistake to suppose that the judicious introduction of fresh blood would not be beneficial. There were other localities too, it was observed, which urgently demanded attention, and the Government suggested that a suitable site might be found in the Salem district. To that district attention was accordingly turned, with the result that a site reported to be suitable was after some difficulty found near Hosúr. This site was ultimately taken up, and upon it was formed the stock depôt recently closed owing to the withdrawal by Government of the funds necessary for its upkeep.

" 3. *The Depôt.*—The land finally selected was a piece of about 1,260 acres lying in one block on the bank of the Ponniar, a perennial stream, and included about 200 acres of land which it would have been possible to cultivate with fodder crops. The site of a ruined village on this block formed a suitable position for the erection of the necessary buildings; the land adjoining between this site and the river lent itself well to development as pasture land, and above it lay some of the arable land on which it was proposed to raise fodder crops. Most of the land, however, was wild scrub jungle, rocky, and sparsely grassed, the arable land itself being either overgrown with scrub or with thatch-grass which had to be cleared; the soil was generally very poor.

Detailed proposals were approved of by the Government in November 1887. In the meanwhile the land had been acquired, Rs. 400 sunk in improving a well on the property, and sheds were erected for the stock, and resident staff. Government then sanctioned an expenditure of Rs. 3,925 for starting and working the depôt, and Rs. 2,000 for the purchase of bulls. The depôt was placed in charge of a resident overseer, supervised more or less by Mr. Shunker and controlled by the Assistant Director acting under the orders of the Board. The depôt was to be devoted primarily to sending out selected sires and was not to be in the beginning at any rate converted into a farm for experimental breeding.

"4. A number of Aden cattle and a considerable sheep-flock, which had been standing at Saidápet since the abandonment of the Government Farm there, were removed to the depôt in December 1887 and January 1888 to form a nucleus for future operations. A few bulls were purchased early in 1888, and when the year 1887-88 closed, operations at the depôt had been started. A small number of bulls had already been sent out into the districts."

43. At the beginning of the year under report it was intended to purchase as many young bulls as was possible with the money provided, and early in the year a suggestion, approved of in 1882 to bring new blood into the sheep-flock, was revived and approved of by Government in June last. Early in September, however, orders were received from Government to stop all expenditure in connection with the depôt, unless it was absolutely necessary for its up-keep, and the question of its utility was referred to the Agricultural Committee already alluded to. Before this question had been reported upon the Government struck out the grants for the upkeep of the depôt from the departmental budget for 1889-90 and it became necessary to close it. This was done and most of the stock was sold at Salem after the exhibition of February 1889; part of the sheep-flock was made over to the College of Agriculture and part sold to the Mysore Agricultural Department. The total cost of the depôt during its existence was as follows:—

	RS.
Buildings, &c.	1,100
Purchase of stock	887
Transfer of stock from Saidápet to Hosúr	283
Establishment and upkeep charges	5,204

44. During the year 1888, 17 bulls belonging to the department were stationed in the districts as follows —1 in Madura, 5 in Coimbatore, 10 in Salem and 1 in South Canara; of these, 9 were sent out and 1 was received back from Dr. Shortt during the year. Excepting 4, all were Adens. The work done by these bulls formed the subject of a special report, and, excepting in the case of 5, was shown to have been good generally and remarkably so in some cases. Considering the difficulties connected with its initiation, the experiment gave promise of success had sufficient time been allowed and if efficient supervision could have been provided. As, however, no funds were available for its further prosecution, the experiment was brought to an end in February last and the bulls were all sold off at the same time as the other stock remaining at the depôt.

45. *Ensilage.*—As the experiments made in the previous year were regarded on the whole as fairly satisfactory, further experiments to be carried out during the year under report were entrusted to specially selected officers and their attention was specially directed to the financial results of the experiments. Instructions for the guidance of these officers, prepared by Mr. Lawson, were translated into the vernaculars and published in the District Gazettes. The only report regarding these experiments that has yet been received is from Mr. Goodrich, Collector of Bellary, who has informed the Board that he was unable to make any, owing to the unfavorable nature of the season in his district.

46. *Pony-breeding operations*—were extended to the Nílgiris in June 1888 when one stallion was sent to Ootacamund. A salustri was at the same time appointed for duty in that district; this officer after going through a course of training under Mr. Shunker took up castration operations, already commenced there in July by two salustries detailed temporarily from Salem. The covering season adopted on the Nílgiris is from June to December. During the year 194 mares were covered by 6 stallions in Coimbatore, 149 by 3 stallions in Salem, and 35 by the stallion sent to the Nílgiris, of which 14 were

covered in Coimbatore before his removal from that district. One stallion was sold and one bought during the year, and the number of coverings increased from 307 in 1887 to 378, or by 71 in all, of which 41 pertained to the Salem district. Considerable differences occurred in the height of the mares covered, but allowing for evident errors the average was about 12 hands in Salem, and 12·2 in Coimbatore and Nílgiris. It was found that the stallion sent to the Nílgiris under the special orders of Government, though only 14 hands ½ inch, was too high for use there and orders have since been issued for his removal.

47. The results of the coverings effected during 1887 were reported during the year and showed that of the mares covered regarding which the results could be determined, 79 per cent. proved "empty" in Coimbatore and 63 in Salem; and that out of a total of 307 coverings the results in 38 cases were unknown while only 70 mares were filled. From the commencement of pony-breeding operations in February 1885 up to March 1888 only 109 out of a total of 475 or 23 per cent. of the coverings are known to have been successful, a result which cannot be regarded as satisfactory. It, however, compares not unfavorably with those obtained at the Kunegal stud farm in Mysore where the average of the last 9 years has been 29·55 and the conditions obtaining are very favorable to obtaining a successful result. The total cost of the operations, from their commencement up to the end of March 1889, was as follows :—

Where inam.	Establishment.	Feeding and attendance on stallions.	Purchase of stallions and expenses.	Castration charges.	Total.
Madras	..	1,291	6,297	..	7,588
Coimbatore	1,086	4,407	..	693	6,186
Salem	1,194	3,332	..	805	5,331
Nílgiris	514	592	..	125	1,231
Total ..	2,794	9,622	6,297	1,623	20,336

The salary of the Deputy Inspector of Cattle Diseases, who has been in charge of the operations, under the orders of the Collectors, since July 1886, is not included in the statement. The experiment has been under trial, however, for too short a time yet to allow of any definite conclusion being drawn, and inquiries are being made to allow of a comparison being effected between the results obtained in this and in other provinces. Mr. Hazelton's remarks, paragraph 26 of his report, regarding the possibility of breeding good horses in Southern India, can, however, be only taken to apply to the Mysore plateau and not to the plains.

48. Castration of country "tats" was carried on in the three districts above mentioned during the year, the total number castrated being in Coimbatore 107, in Salem 118, and on the Nílgiris 87. Operations were begun in Coimbatore in May and were suspended in March following; they were suspended in Salem also during two months of the year. On the Nílgiris they were begun in July and suspended during December and January, as owners were afraid that castration in the cold season might prove dangerous to their animals. Three casualties following on castration occurred in Coimbatore. In Salem 12 asses and two bulls were castrated, besides the tats already mentioned. No further castration of bulls was attempted either in Salem or Coimbatore.

49. *Cattle-disease Prevention.*—As has been already noted, Mr. Hazelton, V.S., A.V.D., took charge of the work in this branch of the department shortly before the commencement of the year under report. He continued in charge of it throughout the year, and has submitted a report, which is printed as an appendix to this report. He was assisted during part of the year by the newly-appointed Sub-Assistant Director of Agriculture and had working under him 16 Stock Inspectors. He also had five probationers under training to fill vacancies in the list of Stock Inspectors. One Stock Inspector was on duty in the Educational Department for the greater part of the year.

50. Cattle-disease of a severe type prevailed in many of the districts during the year, those which suffered most being the Ceded districts and Kurnool, North Arcot,

South Arcot and Chingleput, Madura and Tinnevelly and Malabar, and detailed statements are given in the appendix showing, not only the details of losses reported in each month of the year for the whole Presidency, but also for the particular sections of the country alluded to separately. The usual statement of mortality reported in each district is also given, with the percentage of the losses to total stock reported to exist in each case. The following is a brief abstract of the losses recorded for the whole Presidency during the year as compared with those brought to notice during the year 1887-88 :—

Causes of death.	During the year ending the 31st March					
	1887-88.			1888-89.		
	Cattle.	Sheep and goats.	Horses and ponies.	Cattle.	Sheep and goats.	Horses and ponies.
Diseases.						
Rinderpest	116,558	5,180	..	95,795	4,075	..
Diarrhœa and dysentery	3,966	959	2	47,946	4,363	5
Anthrax	34,432	1,816	..	19,893	3,253	5
Foot-and-mouth disease	2,763	211	3	5,260	989	..
Variola	733	3,373	..	2,841	7,387	1
All other diseases	15,771	5,430	34	24,529	9,212	88
Total deaths from disease ..	174,223	16,969	39	196,264	29,279	99
Other causes.						
Natural decay	33,535	5,851	11	129,471	30,174	256
Accidents	45,857	20,106	59	9,009	11,585	68
Snake-bite	1,824	78	2	2,587	241	11
Wild animals	7,591	3,609	29	9,520	7,364	96
Poisoning	44	..	..	85	23	..
Total deaths from all causes ..	263,074	46,613	140	346,936	78,666	530

A considerable part of the increase in the numbers of 1888-89 may not unreasonably be attributed to improved registration, a point to which effort has for some years been persistently directed. Disease, mostly preventible, cost the ryot community nearly 20 lakhs during the year as shown in the following abstract :—

Causes of deaths.		Cattle.	Sheep and goats.	Horses and ponies.	Estimated value.	Note.
					RS.	
Disease ..	In 1887-88	174,223	16,969	39	17,59,784	Cattle are taken a Rs. 10 each, sheep and goats at Re. 1 and ponies at Rs. 15 each, respectively.
	,, 1888-89	196,264	29,279	99	19,93,404	
	Increase ..	22,041	12,310	60	2,33,620	
Natural causes.	In 1887-88	88,851	29,644	101	9,19,669	
	,, 1888-89	150,672	49,387	431	15,62,572	
	Increase ..	61,821	19,743	330	6,42,903	

51. Excluding in all cases the Madras district, from which no reports of the deaths amongst farm-stock are received, the latest statistics give the following results as to the rate of mortality for each description of stock during the year under report.

Description of stock.	Total number existing.	Rate of mortality per cent.		
		From disease.	From natural causes.	From all causes.
Horned cattle	13,699,395	1·43	1.09	2·53
Sheep and goats	11,389,668	·26	.43	·69
Horses and ponies	39,254	.3	1·09	1·35

The total reported mortality amongst cattle is extremely and unnaturally low, and especially is this the case as regards the number of deaths reported from natural causes, which it will be noticed only amounts to 1·09 of the total stock in the country. This points to the fact that the number of deaths reported to the department is very much below the actual, for a natural death-rate should be much more nearly from 7·5 to 10 per cent.* than the abnormally low rate of 2·5 per cent. as at present reported. An attempt has been made to check the mortality as reported to the department by the statistics of the export of hides from the Presidency, but it must be given up as useless. The mortality statistics do not include any returns from zemindaris like Vizianagrum, Venkatagiri, Kálahasti, Ramnad, &c., independent states such as Jeypore, Pudukóta, &c., nor even from whole inam villages; whilst the export statistics include very large imports of hides by sea, by rail, and by road, which simply pass through the Presidency; and further no useful estimate can be made of the consumption of hides in the Presidency to meet local demands. So far as the export statistics go, however, they bear out the belief that the number of deaths reported is much below the number which actually occur. These remarks apply with equal or greater force to the number of deaths reported both among sheep and goats and among horses and ponies.

* The average duration of life among cattle may be taken at from 10 to 15 years.

52. There is, however, some reason for believing that the reports of the number of deaths from disease are reasonably accurate. This being so, it may be observed that the sections of the country already noticed as those in which the heaviest losses occurred are those in which the losses bear the largest proportion to the stock existing. The figures relating to those sections may be summarised as follows :—

Districts.	Total stock of horned cattle existing.	Mortality reported amongst horned cattle.							
		From rinder-pest.	From diarrhœa and dysentery.	Total columns 3 and 4.	Percentage of column 5 and column 2.	Anthrax.	All other diseases.	All diseases.	Percentage of column 9 and column 2.
1	2	3	4	5	6	7	8	9	10
Kurnool	582,697	8,459	976	9,435	1·7	723	5,230	15,388	2·6
Bellary	600,803	4,003	186	4,189	·7	1,215	1,490	6,894	1·2
Anantapur	587,747	10,701	1,090	11,791	2·0	1,408	1,472	14,671	2·5
Cuddapah	985,175	6,116	4,241	10,357	1·0	1,838	2,016	14,211	1·4
Total ..	2,756,422	29,279	6,493	35,772	1·4	5,184	10,208	51,164	1·8
Chingleput	407,924	4,251	5,866	10,117	2·4	2,626	2,174	14,917	3·4
North Arcot	731,861	5,118	8,304	13,422	1·3	4,250	1,447	19,119	2·6
South Arcot	984,724	15,940	1,638	17,548	1·8	1,055	767	19,400	1·9
Total ..	2,124,509	25,309	15,808	41,117	1·9	7,931	4,388	53,436	2·5
Tinnevelly	483,758	3,468	8,313	11,781	2·9	514	4,456	16,751	3·5
Madura	637,596	5,255	8,808	14,063	2·2	110	1,559	15,732	2·4
Total ..	1,121,354	8,723	17,121	25,844	2·3	624	6,015	32,483	2·9
Malabar	901,206	9,956	1,839	11,795	1·3	92	1,128	13,015	1·4
Nílgiris	58,973	1,298	13	1,311	2·2	1	78	1,390	2·3

The Nílgiris may be excluded from further notice here, as the district is a very small one. Mr. Hazelton is so strongly of opinion that most of the deaths attributed to diarrhœa and dysentery are really due to rinderpest that these causes have been taken together in considering these statistics. The figures given in the table above in no case indicate a heavy percentage loss from rinderpest nor from all diseases, most of which are more or less preventible, even in the districts mentioned where disease was most rife; Tinnevelly (3·5 per cent.) and Chingleput (3·4 per cent.) giving the highest figures. But the percentage loss is not the standard by which these losses should be gauged. The total loss which has already been noted and the actual loss which falls on individuals or villages should be considered, and this last is well known to be in some cases almost ruinous.

53. It is only during the last two years that the statistics of mortality amongst cattle have been tabulated on the same system. The numbers reported to have died from disease in that period have reached very startling proportions and in both years the greatest losses have been caused by rinderpest as will be seen from the following statement:—

Mortality.	From rinderpest, diarrhœa and dysentery.	From anthrax.	From all other diseases.	Total from all diseases.
In 1887-88	120,524	34,432	19,267	174,223
,, 1888-89	143,741	19,893	32,630	196,264

In these figures, the deaths attributed to diarrhœa and dysentery are included with those put down to rinderpest, for there appears to be no doubt that, in many of the later months of the second year under reference, many deaths that were really due to the latter disease have been returned as due to the former ailments. In the returns for the year 1887-88, there appears to be reason to believe that some at least of the deaths attributed to anthrax were caused by rinderpest, especially in the district of North Arcot.

54. During the twenty-four months under reference (diagram No. 1) those during which the smallest loss from disease occurred were May and June 1887, and from that date onwards the losses have been considerable, exhibiting, however, large fluctuations. Regarding these, if the losses from rinderpest, &c., be first considered, the lowest figure (3,791) is found in June 1887, and of these not less than 2,695 deaths were reported from the Ceded districts and Kurnool. From June onwards there was a steady rise in the number of deaths until October when the reported deaths had reached nearly 9,000; this was followed by an enormous increase in the next two months, the number reaching nearly 18,000 in December. After this there was a steady fall in January and February 1888, and a sharp one in March and April to a monthly rate of loss of under 12,000 from this disease. Slight fluctuations with a gradual decline followed until in August the reported loss was less than 11,000. Then followed a gradual rise in the two succeeding months, and a sharp rise during November and December, succeeded by a decrease during January and February 1889, similar to but much more pronounced than that experienced in 1888. In March last there was a slight increase. From October 1887 onwards until March last the number of deaths from this disease never went below 10,000 in any one month. The number of deaths from all diseases showed almost the same fluctuations as those referred to from rinderpest. From the month of September 1887 up to March last, the monthly death-rate was only once (13,888 in August 1888) below 14,000, and in December 1887 reached the enormous total of 23,942, and in December 1888, 22,054.

55. It is not, however, sufficient to review the statistics for the Presidency as a whole, for the conditions and climates of various parts of it differ very considerably, and a scrutiny of the statistics shows that the fluctuations of losses have not followed the same course in all parts of the country. An examination of the second diagram shows that the losses in both years under reference occurred chiefly in well-marked sections. In 1887-88, the chief losses occured in (1) the Kistna, (2) the Ceded districts and Kurnool and (3) the Chingleput, North Arcot and South Arcot districts. In 1888-89, as already noted, the chief losses were experienced in (1) the Godávari, (2) the Ceded districts and Kurnool, (3) Chingleput, North Arcot and South Arcot, (4) Madura and Tinnevelly and (5) Malabar. It therefore appears that an examination of the statistics of mortality for—

(1) The Ceded districts and Kurnool for both years,
(2) The Chingleput, North Arcot and South Arcot for both years,
(3) Madura and Tinnevelly for 1888-89,

may serve a useful purpose. The mortality from rinderpest in each of these groups of districts is plotted in the third diagram for the periods named.

56. Rinderpest broke out in the Kurnool and Bellary districts early in 1887, and the death-rate in these and the two adjoining districts, Anantapur and Cuddapah, had reached 3,737 in April of that year. In May it nearly doubled, but fell again in June to less than 3,000 ; thereafter there was a steady and persistent rise in the number of deaths till February 1888, followed by a very slight fall in March, but no great diminution took place till June 1888, after which until October there was a steady decline, on which followed a period of slightly fluctuating mortality up to March 1889. These fluctuations do not seem to have followed any climatic conditions, but as the disease still prevails in the part of the Presidency referred to, it is as yet too early to trace the course of the disease completely.

57. In the second group of districts, although the disease existed, there appears to have been no epidemic outbreak until July or August 1887. In the two months following, the disease apparently spread steadily, the mortality reaching 3,578 from rinderpest and 6,266 from all diseases in October. Thereon followed three months of extreme and severe losses with a maximum of 11,020 deaths from rinderpest and 14,801 deaths from all diseases in December 1887. The early months of 1888 showed some slight abatement of the disease, and in March a decided improvement took place, the losses in that month being only 4,747 from rinderpest and 5,203 from all diseases. The improvement continued during the succeeding six months, though the districts continued to lose about 2,500—3,000 cattle from rinderpest in each month. The virulence of the disease increased in October, and again, as in the previous year, November and December showed the most severe losses, but in neither was the disease so destructive, nor did it apparently continue in a severe form so long as in 1887. During January 1889 and the succeeding months, there was a most satisfactory decrease in the deaths from this scourge, and the death-rate from all diseases had fallen in March last to a figure below any recorded since July 1887. In these districts, it would appear that the heavy rains of the north-east monsoon and the wet weather experienced during the later months of the year are at least a contributory cause to a heavy death-rate. This very probably may be due to the deficient shelter provided for stock, the insanitary condition of the dwellings and villages in which they are kept, and to the fact that these rains bring on a flush of rank rapidly grown and extremely succulent herbage, in itself a frequent cause of disturbance to the animal economy.

58. In the Tinnevelly and Madura districts the disease apparently assumed an epidemic form in October 1888 and increased steadily in destructiveness till January, after which month the losses from it steadily decreased.

59. A scrutiny of the statistics does not as yet afford much aid in tracing out the conditions, which govern the rise, progress and decline of outbreaks of rinderpest.

60. During the year under report *Anthrax* caused 19,893 deaths, the chief losses occurring in North Arcot, Chingleput, Tanjore, Cuddapah and Anantapur. The greatest number of deaths from this cause occurred in November and December. *Foot-and-mouth disease* caused 5,260 deaths, the greater number occurring during the later half of the year, with the maximum in January. Tinnevelly was, however, the only district from which a considerable number of deaths was reported from this disease, which is seldom fatal. Deaths from *Variola* were also reported in large numbers from Tinnevelly where 1,048, out of the total 2,841, deaths from this cause occurred. Diseases not specified in the returns carried off 24,529 head of cattle, the heaviest losses occurring in October, November and December, with the maximum 2,725 in the last month. The district which reported the largest number of these deaths was Kurnool (4,961) and next to it, with less than half the number, Tinnevelly, whilst from both the Kistna and Cuddapah nearly 2,000 deaths from unspecified diseases were reported.

61. Losses from disease amongst sheep and goats were most severe in Cuddapah, Anantapur, Madura, Bellary and Tinnevelly, but in no case did the reported losses in any district amount to 5,000 head. Of the total (29,279) the largest number attributed to any specific disease was put down to sheep-pox (*variola*), but the number due to this disease was exceeded by those attributed to unspecified diseases, and by those put down to rinderpest and diarrhœa and dysentery, if the last three be taken together.

The heaviest losses occurred in March, when over one-fourth of all the deaths occurred: the death-rate was much higher during the later months of the year from November onwards, than before.

62. The losses reported amongst horses and ponies from disease were only 99, the great majority of these being put down to unspecified diseases. Nearly one-third of these deaths occurred in Anantapur, and more than half of the remainder in Bellary and Kurnool, so that these three districts accounted for nearly 70 per cent. of all the deaths. The most unhealthy months were August and September, during which over one-third of the reported deaths occurred.

63. The very large increase in the number of deaths attributed to natural causes during the year under review over that reported in 1887-88 cannot be put down to any increase in the actual losses of the country, but rather to improved registration. It has, however, been suggested that part of the increase may be due to village officers reporting the cause of deaths inaccurately in order to prevent, if possible, a visit from the Stock Inspector. As already noted, there are other signs in the figures that the returns are still far from being even approximately accurate in most districts. The only districts which report a number of deaths from " natural decay " which could in any sense be called considerable in proportion to the number of horned stock in them are Kurnool, Chingleput, Trichinopoly, Tanjore, Tinnevelly, Nílgiris and the West Coast districts, and in only one of these, Chingleput (2·1 per cent.), does the proportion exceed 2 per cent. of the total stock, and it is from that district that the Collector has suggested the explanation noted above to account for the increase in the number of deaths reported. The number of deaths attributed to decay is still probably much under-stated, and much of the increase may be attributed to the very proper transfer to that column of a number of deaths which in former years would have been registered under " accidents," for under that heading there is a very marked decrease.

64. The increases under snake-bites and wild animals are considerable, and are most marked, as far as cattle are concerned, under the former head in Kistna, Cuddapah, Nellore, Coimbatore, Trichinopoly, Tanjore and Madura, and under the latter in Madura, Salem, Cuddapah, Anantapur, Bellary and Kistna, whilst there is also a considerable increase under the latter head in Godávari, Kurnool and South Arcot, and a falling off in the two West Coast districts. In Ganjam there has been a decrease under both heads. Salem and Nellore reported no deaths of cattle from wild animals, and Salem none from snake-bite in the previous year. The increase of deaths under these heads both as to sheep and goats and horses and ponies is very marked, but as in the case of cattle probably most of these variations may be due to improved registration ; they, however, indicate, as do other signs in the statistics, that there is still much to be done to render them accurate.

65. The number of deaths attributed to poisoning during the year was 130 cattle and 36 sheep and goats, against 44 cattle in the previous year; of these, however, inquiry has shown that in the case of 45 cattle and 13 sheep the deaths were really accidental and were not due to criminal poisoning. As to the remainder (85 cattle and 23 sheep) it is not yet certain how many cases were really due to criminal poisoning, for explanations on the subject have not yet been received from the Collectors of the marginally-noted districts. Regarding the 12 cases of criminal poisoning, the information available is as follows:—In *Nellore*, one case of suspected poisoning occurred, but no complaint was preferred before any Magistrate regarding it. In *Cuddapah*, two deaths were attributed to criminal poisoning because when turmeric was applied to their mouths it turned red. This, however, does not

Cases of poisoning reported.

From	Cattle.	Sheep and Goats.
Ganjam	1	...
Vizagapatam	2	...
Godávari	3	...
Kistna	6	...
Kurnool	24	23
South Arcot	34	...
Madura	3	...
Total ...	73	23

appear to be a true test; no culprits were traced out. In *Anantapur*, in one case in Penukonda the culprit was sentenced to three months rigorous imprisonment and a fine of Rs. 10, or in default to a further 10 days of rigorous imprisonment. In the other case, in Hindupur, which is apparently that referred to by the Inspector of Cattle Diseases in paragraph 26 of his report, the culprit was not detected. In *North Arcot*, two cases of suspected poisoning occurred in the Narayanaveram division, but suspicion was not fixed on any one. One case of poisoning occurred in the Gudiyátam taluk, and the offenders (two) were sentenced to six months' rigorous imprisonment. From *Tanjore*, the Collector reports only one case of wilful poisoning in which the offender could not be brought to justice for want of evidence. The Inspector of Cattle Diseases states, however, that two persons were sentenced to six months' rigorous imprisonment for poisoning a buffalo with the juice of the *Euphorbia antiquorum*. In *Tinnevelly*, three persons accused of poisoning two cattle were tried and convicted, but their conviction was quashed on appeal. In *South Canara*, a man of the Koragar caste was accused of poisoning a cow, but was discharged for want of sufficient evidence to convict him. A case of attempted poisoning with arsenic in *Salem* is also referred to by the Inspector of Cattle Diseases in his report, but the animal recovered and culprit escaped.

66. The operations of the officers of this branch of the department may now be reviewed. Mr. Hazelton went to Hosúr in April and later on to Anantapur and returned to head-quarters in May. June was spent at head-quarters, and July in supervising the working of Act II of 1866 in Anantapur. In August the Nílgiris were inspected at the instance of the planting community in consequence of an outbreak of rinderpest there, and in September a visit to one part of Tinnevelly was made. In October the Inspector of Cattle Diseases attended the Mysore exhibition, and proceeded on brief visits to Kurnool and Anantapur to examine Stock Inspectors for promotion. In November he proceeded to Malabar, whence he returned, after again visiting Hosúr, to Madras, and in December inspected a few villages in the Chingleput district. In January a brief visit was paid to the South Arcot district to collect materials for a special report on the long continuance of severe disease in that district, and this was followed by duty at the Bellary and Salem exhibitions and a tour of inspection in Trichinopoly which lasted till 15th March, when the tour was continued into Madura and concluded on 3rd April. Mr. Hazelton has shown himself to be an active, energetic and efficient officer.

67. The Sub-Assistant Director of Agriculture, newly appointed during the year, joined the appointment on the 23rd July and was at once deputed to Anantapur, but he remained there only till the 15th August, when he was called upon to discharge the current duties of the Assistant Director of Land Records and Agriculture, then on leave, for three months. On relief from the last-named duty, the Sub-Assistant Director visited South Arcot in November and December, moving on into North Arcot towards the end of the latter month, and remaining there till he also had to proceed to the Bellary and Salem shows. After that he was deputed to Tinnevelly for duty, where he worked till the end of the year, visiting villages, advising cattle-owners and treating sick animals. He has been constantly on the move and has worked earnestly and well.

68. *Stock Inspectors*—were on duty in the Godávari, Kistna, Kurnool, Bellary, Anantapur, Chingleput, North Arcot, South Arcot, Salem, Coimbatore, Tinnevelly, Malabar and South Canara districts for the greater part of the year, but in May three Inspectors were deputed to Anantapur in addition to the regular Inspector posted to the district; in September two extra hands were sent into Kurnool. The North Arcot Inspector was also for a time on duty in the Wynaad, and the Godávari Inspector in the Kistna, but as the department is at present manned, it is quite impossible for it to deal in any adequate manner with cattle disease, whether by way of prevention or of cure.

69. The Inspector of Cattle Diseases gives in his report a summary of the Stock Inspectors' reports. In a later report he states that most of them were not forwarded through the Collectors, and that only two Collectors have remarked on them. Mr. Hazelton does not make any comment himself on the reports he summarises, nor

does he state his opinions generally on any points brought to notice by his subordinates. He will be requested to report specially whether the remarks of the Stock Inspector, Chingleput, regarding the difference noted as to the manner of appearance of anthrax and rinderpest respectively, are of general application. He will also report what action has been taken on the remarks of the Inspectors of Tanjore and North Arcot regarding the sanitary condition of the tanneries and hide depôts to which they allude, and whether the attention of the District Boards and Magistrates have been drawn to this matter, as they should been as soon as the facts were reported. The statements made by the Stock Inspector, Coimbatore, as to the heavy losses of many ryots from disease and as to the dissemination of disease by Pariahs will be reported on by the Collector and by the Inspector of Cattle Diseases and the truth or otherwise of these allegations established.

70. On the whole, 15 Inspectors visited 3,599 villages, but the Inspector of Cattle Diseases is unable to state how many of these were affected by disease and how many were not. One Inspector, G. Rungiah Naidu, appears to have done very little work in the way of inspection; he inspected only 87 villages. The 17 Inspectors are reported to have treated 8,610 sick animals, but, deducting the animals treated by Inspectors who were on duty for only part of the year, 15 men treated 8,005 animals, regarding the fate of 2,390 or nearly 30 per cent. of which no information is available. Of the rest, 4,103 or 75 per cent. are reported to have recovered. The average number treated comes to about 1½ per diem per man, a number that is extremely small when it is remembered how rife disease has been. It may also be assumed that in most cases where the result was not determined, the Inspectors' treatment was not very long continued. The Inspectors who show the largest numbers treated are those of North Arcot, Coimbatore, Tinnevelly, Malabar and Tanjore; but of these the Tinnevelly and Malabar Inspectors are unable to state the results in a large proportion of cases. The Inspectors of Kistna, South Arcot and Kurnool treated a very small number of cases each—170, 200, 127 respectively; the work done by the last, G. Rungiah Naidu, was especially deficient. Some of these results may be due to the want of a closer control over the movements of these officers than exists, or perhaps may be possible at present, but the matter is receiving close attention.

71. The work done by the Inspector of South Canara in castration is commendable, and the system of printing brief directions for the guidance of stock-owners on slips for wide distribution, which has been adopted by the Inspector, North Arcot, will be extended, Mr. Hazelton having been requested to prepare the instructions. In Tanjore an attempt was made to extort money by personating the local Inspector, but the culprit was arrested and sentenced to 21 months' imprisonment. The mere fact that such personation is considered to be profitable shows what power there must be in the hands of Inspectors, and how necessary it is for all District officers to supervise their work closely. Collectors were authorized during the year to depute their controlling power over the Inspectors to their Divisional officers who are better able to watch their work and movements while in their divisions.

72. The revised rules for the guidance of Stock Inspectors that were adopted towards the close of the previous year were found to work fairly well, but experience has shown that much yet remains to be done to improve the system of reporting and recording cattle disease as it occurs. The matter receives constant attention when disposing of the Inspector of Cattle Diseases' monthly reports on the state of cattle disease in the Presidency. That officer will, however, be requested to report what action he has taken with reference to the remarks of the Stock Inspectors of Kistna, Anantapur and South Canara as given in his report, and should draw the attention of Collectors at once to any delays or inattention reported by the Stock Inspectors with reference to reports on out breaks. The Stock Inspector, Coimbatore, will be called upon to state on what his assertion that only 5 per cent. of the deaths that occur are recorded is based.

73. A discussion that took place during the year regarding the best means of improving the technical knowledge of the existing staff of Inspectors led to the conclusion that, in the absence of any other and better means, much might be done by the Inspector of Cattle Diseases giving the men during his tours sound practical advice,

and by strictly enforcing the rules of examination for promotion. The standard of examination for promotion was raised during the year, and a fresh syllabus of subjects has been drawn up.

74. *Probationers.*—Five were under training by the Inspector of Cattle Diseases during the year; one of these was dismissed for continued absence without leave. The training given was for the most part practical and was partly conducted at Madras by the Inspector of Cattle Diseases and partly in the mofussil; in the latter case sometimes under the direct supervision of the Inspector of Cattle Diseases, sometimes under an Inspector. The Government disapproved of this system, and as there are at present no other means of training them no steps have been taken to recruit any more probationers for the department.

A good deal of discussion took place during the year as to the means of recruiting for this branch of the department. The College of Agriculture, Saidápet, could not teach up to a sufficiently high standard to provide competent Stock Inspectors, and the result of inquiries made in Bombay was to show that it was doubtful whether the course at the Veterinary School there would altogether meet the requirements of the department, the Veterinary teaching being entirely divorced from Agriculture. It was therefore resolved that no further action should be taken in the matter pending the receipt of the orders of the Government of India on the proposed formation of a Civil Veterinary department and the institution of a training school for Veterinary subordinates. Efforts are, it is believed, being made to improve the Veterinary training at Saidápet, and it may be possible to draw recruits from that source at no distant date.

75. Large quantities of medicines were distributed in the districts during the year, but it is hopeless for the department, without largely increased funds and staff, to attempt to deal with the supply really required for the number of cases of sickness and disease which occur. Some progress appears to have been made in gaining the confidence of the people as to the value of European medicines, but there is still much to be done in this matter. No experiments of much interest were made during the year, but from trials made with it Mr. Hazelton considers that there is some hope of cinchona febrifuge proving to be of use in the treatment of rinderpest.

76. The working of Act II of 1866 for the prevention of cattle disease was fully reported on shortly before the close of the year. The Act was in operation in Kistna, Malabar and Nílgiris, but was not enforced. In South Canara and Madura, it was only applied to small areas for the control of large cattle fairs. In Chingleput, though in force, no active operations were taken under it. It was put in force in Anantapur for a few months during the year and again withdrawn, and was also applied to part of Tanjore, to the whole of South Arcot and to two taluks of Coimbatore during the year. A considerable amount of experience has been obtained in the working of the Act, and various suggestions have been made for its improvement, but with so small a force as is available for the proper working of it, it appears almost hopeless to obtain substantial results from its introduction anywhere. This matter is at present under discussion however, and it is unnecessary to refer to it more fully in this place. Under the law as it at present stands all operations under the Act are controlled by the District Magistrate, outside whose authority the department and its officers have no jurisdiction. The draft rules alluded by Mr. Hazelton have been held over for disposal pending the issue of the orders of Government on the working of the Act.

77. The total cost of cattle-disease operations during the year was Rs. 40,194-13-5 (not Rs. 40,007-1-0 as erroneously stated by the Inspector of Cattle Diseases in paragraph 25 of his report) and this amount includes the sum of Rs. 624-11-4 the cost of European medicines supplied during the year for use during 1889-90, as well as Rs. 4,955-9-0 on account of the Deputy Inspector of Cattle Disease in charge of pony-breeding operations in Coimbatore and Nílgiris. Having regard to the enormous number of the stock owned by the agricultural population who contribute no small share of the State's annual revenue, the passive resistance of a superstitious class, if not their active opposition to all efforts for the suppression of disease, and the

enormous losses caused by cattle disease in every year, it must be admitted that the amount spent in this Presidency in trying to combat cattle diseases is not great, but present financial conditions make it impossible for the Government to hold out the prospect of more liberal grants—G.O., No. 371, Revenue, dated 30th May 1888. This being so it was proposed during the year by Government that an attempt should be made by the department to train a class of cow-doctors of the ryot class, but so far men of the class wanted have not come forward. Some assistance in the form of a grant of medicines was given by the department during the year to a native cattle doctor practising in the Tinnevelly district.

VII. Miscellaneous—Statistics.

78. *Rail-borne Trade.*—The registration and compilation of the rail-borne trade statistics of this Presidency were transferred on 1st April 1888 to the Examiner of Guaranteed Railway Accounts, Bombay, excepting a small portion of the external trade which is registered by the Audit offices at Jamalpore * and Lahore † in Northern India. The total trade registered during the year 1888-89 amounted to over $29\frac{1}{3}$ million Indian maunds or 11·8 per cent. more than the trade of the previous year as shown below :—

* The East India and Katui-Umarie Railway.
† North-Western Railway in the Punjab.

—	1887-88.	1888-89.	Difference.	Percentage of increase or decrease.
External Trade—	I. MDS.	I. MDS.	I. MDS.	
Imports into the Presidency ...	3,486,463	2,919,492	— 566,971	— 16·2
Exports from do. ...	2,956,846	3,684,020	+ 727,174	+ 24·6
Total ...	6,443,309	6,603,512	+ 160,203	+ 2·5
Internal Trade	19,821,936	22,772,730	+2,950,794	+ 14·9
Grand Total ..	26,265,245	29,376,242	+3,110,997	+ 11·8

79. *The external Trade.*—Or the trade of this Presidency with the other British Provinces and Native States was, as usual, chiefly confined to Mysore, Bombay and the Nizam's territory. The percentage of trade contributed by each of these and the other external blocks both under imports and exports was as follows :—

External block.	Imports. Percentage.	Exports. Percentage.
Mysore	59·9	67·7
Bombay	18·3	19·5
Nizam's territory	16·1	12·3
Other blocks	5·7	·5
Total ...	100	100

The principal articles of import were grain and pulse chiefly from Mysore (1,270,397 maunds); hides and skins (331,529 maunds); provisions (301,553 maunds); oil-seeds (223,639 maunds); dyes and tans (143,686 maunds); raw cotton (120,976 maunds); and sugar (108,444 maunds). The exports which were principally from the Madras port consisted chiefly of grain and pulse (786,021 maunds); salt (259,370 maunds); provisions (243,782 maunds); metals (200,439 maunds); sugar (172,920 maunds); coal and coke (132,401 maunds); and manufactured cotton (119,628 maunds).

The variations as compared with the trade of the previous year under some of the more important articles are shown below :—

Articles.	1887-88.	1888-89.	Difference.	Percentage.
	I. MDS.	I. MDS.	I. MDS.	
Imports—				
Grain and pulse	1,470,591	1,270,397	— 200,194	— 13·6
Oil-seeds	357,508	223,639	— 133,869	— 37·4
Provisions	403,097	301,553	— 101,544	— 25·2
Spices	19,240	80,474	+ 61,234	+ 318·3
Sugar	136,021	108,444	— 27,577	— 20·3
Hides and skins	320,191	331,529	+ 11,338	+ 3·5
Exports—				
Grain and pulse	470,287	786,021	+ 315,734	+ 67·1
Provisions	303,174	243,782	— 59,392	— 19·6
Oil-seeds	123,187	70,060	— 53,127	— 43·1
Spices	12,085	46,714	+ 34,629	+ 286·5
Cotton, raw	53,439	23,790	— 29,649	— 55·5
Coal and coke	103,212	132,401	+ 29,189	+ 28·3
Metals	187,756	200,439	+ 12,683	+ 6·7
Oils	43,520	55,574	+ 12,054	+ 27·7
Sugar	184,169	172,920	— 11,249	— 6·1

The very large increase under spices both in the imports and exports was probably due in a great measure to the trade in some articles previously entered under " Dried fruits and nuts " such as betel-nuts, &c., having been shown under " Spices." The falling off in the imports of oil-seeds was the result of a decrease in the quantity of gingelly and other oil-seeds received into this Presidency from Mysore where the season was unfavorable. For the same reason there was a decrease in the exports of raw cotton and oil-seeds from the districts of Cuddapah and Kurnool.

80. *Internal Trade.*—The trade within the Presidency was chiefly in grain and pulse which contributed 27·15 per cent. of the total trade. The percentages contributed by other principal articles were stone and lime 11·37, oil-seeds 10·74, salt 10·62, provisions 6·11, and sugar 3·68.

81. *Road-borne Trade.*—In their letter No. 190-Statt.—31-3, dated 20th June 1887, the Government of India desired that the traffic on all important and main trade routes should be registered periodically by a well trained moveable establishment. In accordance with these instructions a general scheme for the whole Presidency was drawn up and was approved by Government in their order, dated 1st November 1888, No. 754. The lines taken up in the year under report are noted below.

Inter-provincial Traffic.—Under this head the trade of this Presidency with Orissa was registered at Rambha, situated on the frontiers of the Ganjam district, and that with the Province of Coorg was registered at Muttanur in Malabar and Sompagi in South Canara. The long distance traffic or the traffic passing over a distance of 10 miles and upwards registered at these stations is given below :—

Registering Station.	Inwards.			Outwards.		
	Goods.	Passengers.	Animals.	Goods.	Passengers.	Animals.
	I. MDS.	NO.	NO.	I. MDS.	NO.	NO.
Rambha	230,809	31,513	1,504	161,318	35,248	155
Muttanur	234,923	34,543	2,901	224,550	35,722	7
Sompagi	28,274	45,958	726	34,301	52,973	44
	263,197	80,501	3,627	258,851	88,695	51
Total ..	494,006	112,014	5,131	420,169	123,943	206

The principal articles of import from Orissa consisted of paddy and rice, which together amounted to a little over $1\frac{3}{4}$ lakhs of maunds out of a total of goods traffic of about $2\frac{1}{4}$ lakhs. The chief article of export to Orissa was salt, which amounted to a

lakh of maunds nearly out of a total export trade of over 1½ lakhs. The imports from Coorg were chiefly paddy and spices, which togetheramounted to over 2 lakhs of maunds out of a total of imports of over 2½ lakhs. Nearly a lakh of maunds of salt and half a lakh of maunds of oil-seeds and oils were exported from this Presidency into Coorg.

82. *Internal or Local Trade.*—The internal trade of the Presidency was partially registered at convenient centres on certain main lines of communication in the districts of Ganjam, Cuddapah, North Arcot and Madura. In Ganjam the trunk road extending from Ganjam town to the limits of the Senior Assistant Collector's charge was taken up and the trade on it was registered at Musidipuram where a branch road leads to the port of Gopálpur and at Korlam which is close to the sea-port of Barwa. In Cuddapah the trade was registered at Badvél and Ráyachóti and in North Arcot at Puthalpet and Pennathur. At these centres important trade routes within the districts meet and lead into neighbouring districts. In Madura the roads which severally lead from Madura town to Tondi, Ramnad and Travancore were taken up for registration of traffic. The following tabular statement shows the long distance traffic registered on these roads during the year:—

Road.	Stations.	Goods.	Passengers.	Animals.
		I. MDS.	NO.	NO.
Road No. I (*a*).—The trunk roads from Ganjam to the limits of the Senior Assistant Collector's charge.	(1) Musidipuram	191,601	110,719	400
	(2) Korlam	75,368	7,351	1,898
Road No. 23—Cuddapah to Cumbum ..	(1) Badvél	244,887	26,370	21,619
Road No. 24—Cuddapah to Vellore ..	(1) Ráyachóti	578,936	21,613	2,852
	(2) Puthalpet	349,285	62,692	13,194
	(3) Pennathur	487,092	99,575	6,835
Road No. 43—Madura to Tondi	(1) Poorandi	173,452	88,756	521
	(2) Sivaganga	213,859	49,319	4,300
Road No 44—Madura to Ramnad	(1) Mana-Madura	204,256	209,616	4,399
	(2) Ramnad	132,232	224,873	1,962
Road No. 45—Madura to Travancore ..	(1) Uthampalayam	178,103	40,213	4,035

83. *Crop statistics.*—The Government of India having desired that the outturn of crops in the Presidency should be noticed in this report, the particulars report ed for the year under report are summarized in the following table. The harvested areas under the chief crops for the previous year are noted for the purposes of comparison. These have been tabulated from the monthly reports received, no special reports having been as yet submitted by Collectors:—

Crops.	1887-88. Area harvested.	1888-89.		
		Area		Outturn per cent. of average.
		Sown.	Harvested.	
Food-grains.				
Paddy	5,465,183	5,832,241	5,122,569	68
Cholum	3,774,447	3,904,561	3,603,415	54
Cumbu	2,507,218	2,329,716	2,311,755	53
Ragi	1,410,040	1,547,579	1,424,648	51
Others, including pulses	*	5,477,255	*	*
Total of Food-grains ..	..	19,091,352	..	..
Industrial crops.				
Sugar-cane	42,232	59,017	44,223	70
Cotton	1,187,882	1,464,362	995,673	56
Indigo	450,916	495,077	458,764	55
Castor	618,648	642,802	522,197	56
Gingelly	609,086	584,120	533,755	51
Ground-nut	129,657	184,907	180,595	69
Tobacco	72,774	85,773	62,725	61
All others, including topes	*	1,185,212	*	*
Total Area ..	..	23,792,622	..	..

* Not reported on.

Outturn reports are received only from Government villages and the area reported on will not on that account agree with the total area of crop raised in the Presidency. The general outturn of all crops was much below the average, but the percentage of the normal as shown above is probably stated too low owing to the system of notation adopted whereby a middling crop is returned at 8 annas whilst an average crop is reported as 16 annas, there being no intermediate standard between them.

Eighty per cent. of the cropped area reported on is occupied by food-grains (cereals and pulses), but regarding nearly 29 per cent. of the area occupied by these crops no reports have been received. Of the cereals, paddy occupies much the largest area ; cholum comes next. Of the industrial crops, cotton occupies 6 per cent., castor-beans 2·7 per cent., gingelly 2·4 per cent., ground-nuts ·8 per cent., and indigo 2 per cent. ; sugar-cane and tobacco occupy much smaller areas. Cotton and oil-seeds are the chief industrial crops of the Presidency and together occupy rather over 12 per cent. of the cropped area. The following statement shows the distribution of the area reported on for each crop in the various districts of the Presidency :—

—	Percentage of harvested area under										
	Paddy.	Cholum.	Cumbu.	Ragi.	Cotton.	Indigo.	Sugar-cane.	Castor-oil and lamp-oil seeds.	Gingelly-oil seeds.	Ground-nut.	Tobacco.
1. Ganjam	3·90	·1	·3	4·6	0·37	..	5·9	·5	2·2	..	·6
2. Vizagapatam	0·55	·3	1·2	1·1	0·49	..	12·2	·1	4·4	..	3·6
3. Godávari	11·22	1·5	·3	·9	0·14	·3	16·1	·6	16·5	..	6·0
4. Kistna	7·80	11·4	6·5	1·7	14·75	26·5	..	17·5	·3	..	33·9
5. Kurnool	1·34	16·6	3·3	1·8	19·99	17·5	1·9	17·3	1·1	..	10·5
6. Bellary	0·49	22·2	3·2	·3	22·48	·5	17·1	14·2	5·2	·1	3·2
7. Anantapur	1·94	6·5	1·8	4·6	12·53	3·6	5·0	14·0	2·7	·2	2·0
8. Cuddapah	1·08	9·2	10·9	7·7	7·06	16·0	1·5	6·7	·7	..	·5
9. Nellore	1·19	4·2	2·7	1·5	·99	15·7	..	8·1	·3	..	2·4
10. Chingleput	6·74	·2	·4	3·3	..	3·3	·1	..	5·	4·8	..
11. North Arcot	4·87	·7	4·1	7·5	0·01	4·5	7·2	2·5	12.·	11·8	·2
12. South Arcot	7·21	·5	9·7	9·1	0·09	10·3	10·9	1·3	8·	60·9	1·2
13. Salem	1·53	2·1	11·7	19·0	1·31	·6	4·4	4·8	10·9	1·2	3·9
14. Coimbatore	1·45	16·9	24·8	13·5	15·30	..	5·9	5·4	11·3	·1	19·8
15. Trichinopoly	3·59	2·5	7·4	7·7	0·64	·8	9·0	1·7	1·6	8·0	·5
16. Tanjore	17·35	·3	1·0	1·9	0·30	·3	·6	·2	1·6	12·9	1·6
17. Madura	2·73	2·9	4·9	8·0	1·92	..	·3	4·6	6·3	..	5·8
18. Tinnevelly	4·01	1·9	5·8	3·2	1·62	·1	·1	·1	5·6	..	2·9
19. Nílgiris	0·12	..	..	·1	..	..	..	..	..	..	..
20. Malabar	11·38	..	..	·3	..	..	·1	·3	3·6	..	·1
21. South Canara	9·51	..	..	·2	0·01	..	1·7	·1	·7	..	1·3
Total ..	100·	100·	100·	100·	100·	100·	100·	100·	100·	100·	100·

(True Copies and Extract.)

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

To the Secretary to Government, Revenue Department.

Copy to the Inspector of Cattle Diseases.

„ to all Collectors.

APPENDIX I.

From E. H. HAZELTON, Esq., V.S., A.V.D., Inspector of Cattle Diseases, Madras Presidency, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated Chepauk, 18th July 1889, No. 728.

I have the honor to submit herewith the annual report of this department for the official year 1888-89.

2. The strength of the department on 31st March 1889 was as under—

Inspector	1
Deputy Inspector	1
Sub-Assistant Director of Agriculture	1
Stock Inspectors	* 17
Probationary Stock Inspectors	5
Clerk	1
Compounder and clerk	1
Total ...	27

* Of these, one Inspector has been temporarily transferred for duty at the Agricultural College, Saidápet.

The Deputy Inspector has continued in charge of the pony-breeding and castration operations during the year and has not been available for duty in this department.

3. The Sub-Assistant Director of Agriculture has been working mainly under me since his appointment on 23rd July 1888. He was deputed to other duty during the absence of the Assistant Director of Land Records and Agriculture on leave, and remained away for three months.

He was employed in Anantapur from the end of July until 15th August when he returned to Madras on other duty. During the time he was in Anantapur, he visited the infected villages in the taluks of Dharmavaram and Penukonda and one village in Hindupur taluk. He states in his annual report that he found the number of hides in a village a very useful guide and check on the cattle mortality registers kept by the village officers, and quotes the case of a village called Mallagoondapally, Dharmavaram taluk, in which a large number of hides were found, and where a large mortality among cattle had occurred which had not been registered. He inspected the hospital pounds and assisted in the working of the Act for the prevention of cattle disease (which was in force in the district). He found that the Mathigas (chucklers) conceal a large number of hides taken from diseased animals and send them for sale to convenient weekly markets. He instructed ryots and village officers to tan all the suspected hides to prevent infection. He notes that the hides taken from cattle which die from rinderpest are not durable, and he was shown one which had been made into a well bucket, and which showed numerous rents, although new. He notes the case of the village of Medapuram in Dharmavaram taluk which, although surrounded by villages where rinderpest was raging, had not been visited by the plague, as the reddi had strictly observed precautionary measures and had kept raw hides and sick cattle out of the village. He found a number of sick animals hidden away in the villages in which hospital pounds were erected. He states that the ryots had but a vague idea that rinderpest was a contagious disease.

From 16th August till 13th November 1888, he acted for the Assistant Director of Agriculture.

From 14th to 19th November he was at the Tiruvannámalai cattle fair, South Arcot, and he then worked in the South Arcot district inspecting hospital pounds and supervising the working of the Act. From 22nd December 1888 to 22nd January 1889, he was working in the North Arcot district. He found the reports of cattle disease and the figures of cattle mortality in the taluk cutcherry were mostly incorrect. He found that rinderpest and malignant sore-throat had caused a great mortality among the cattle in the Wandiwash taluk, also that the ryots had left the sick only in the village and the yet healthy were crowded together outside. He did what he could to advise the owners as to what they should do, and pointed out the danger they ran in keeping a large number of animals crowded together during the prevalence of epizootic diseases. Rinderpest appeared in Wandiwash town and he was successful in making the owners attend to segregation and disinfection. The Cattle Disease Prevention Act was proposed to be introduced into Wandiwash taluk, but the outbreak subsiding it was not actually in force.

He next attended the Bellary Agricultural Exhibition where he delivered a speech in Canarese to a large number of ryots on the object and scope of the exhibition. From Bellary he went to Salem to the Agricultural Exhibition there, and after that to Tinnevelly for duty. He notes that rinderpest was prevalent in two taluks, and to a less degree in two more, and as the ryots of villages where the disease prevailed appeared generally ignorant of the infectious nature of the plague, he paid flying visits to the infected villages in order to give the necessary advice to cattle-owners, and afterwards he re-inspected the villages to see that his advice was followed.

He notes that there was not the least attempt at segregation, that the sick and healthy were crowded together, and in one instance he saw animals suffering from rinderpest tied by the road-side on a market day at a village, bandies constantly passing to and fro in close proximity to these sick animals. At the close of the year rinderpest had much subsided in the Tinnevelly district. He notes the prevalence of rinderpest among sheep at several villages in three taluks of the district, and also remarks that the goats in company with the infected flocks seemed to possess an immunity from the disease.

He notes that the carbolic balls issued by the department were highly appreciated in the Dharmavaram taluk of Anantapur. He states that the astringent powder used by the department was not thought beneficial in North Arcot, but also states that in all probability it was administered wrongly. In Tinnevelly, Madura and Tanjore districts, gingelly-oil and plantains are administered to cattle for rinderpest. He advised the addition of camphor and nitrate of potash to the various native remedies, and also that arrack should be given in the convalescent stages of the malady. Gruel made of freshly harvested ragi is thought well of in parts of North Arcot as a nutrient and astringent during rinderpest. He states that it is easy to convince the ryots of the importance of segregation and disinfection by argument and illustration, but they unfortunately have no means of carrying out the measures advised, as they have no place to segregate; and he further adds that infectious disease can be arrested if permanent accommodation for the segregation of sick cattle is provided at every village.

4. *Probationers.*—Six probationers were appointed during the year; of these, one resigned his appointment on the grounds that he could not live on his stipend in the districts, and another was dismissed for absence without leave. Four are now under training in the department. They have visited many districts and have treated many outbreaks of contagious disease; they have worked very well. During the time they have been away from head-quarters on duty they have found it very difficult to keep up their theoretical knowledge, owing to the difficulties attendant on executive work in districts and the want of books: They have had access to a few books when at head-quarters, but their stipends are insufficient to enable them to procure any of their own. They have been working in in the following districts during the year—

V. Chockalingam Pillai.—Anantapur, Nílgiris, South Arcot, Salem, Trichinopoly and Madura.

Talib Ali.—Tinnevelly, South Arcot, Malabar, Chingleput, Bellary, Salem, Trichinopoly and Madura.

R. Kanniah Naidu.—Malabar, Trichinopoly, Chingleput, Salem and North Arcot.

Moses Abraham.—Nílgiris, Chingleput and Bellary.

Stock Inspectors.

5. *Godávari.*—The Stock Inspector reports that the general sanitary condition of cattle sheds in this district is unsatisfactory. He arrived from Ganjam in April 1888, when rinderpest was very virulent among the cattle, and he found that anthrax was not prevalent, sporadic cases only occurring. He complains that his advice on segregation and disinfection was generally disregarded as was his recommendation of salt as a prophylactic measure. He has had considerable success in the treatment of animals during the year, and speaks highly of the efficacy of the medicines used by the department. He has made many *post mortem* examinations, but has noted no appearances worthy of record. He has attended the cattle fairs at Pithápuram and Drákshárámam and notes that Vizagapatam cattle are the variety chiefly met with; these are small but powerful animals, and are noted for the heavy loads they can draw.

He met no cases of cattle-poisoning, but suggests that a register of sales of poisons, especially arsenic, should be maintained as a preventive measure. He notes that the ryots always give the hides of animals that die to the Pariahs, and that the traffic in raw hides is increasing, and by this means infection is spread from village to village. He has always endeavored to explain and lecture to the ryots on the nature, prevention, and treatment of contagious diseases in cattle, but although he can often get the measures he advocates carried out in his presence, yet as soon as he leaves the place, the old practices are persisted in, and he thinks that he should be empowered to enforce what he now advises in vain. (This remark will apply to every district I have visited).

6. *Kistna.*—Rinderpest, anthrax, braxy (sheep), epizootic aphtha and tympanitis were the diseases reported from the district during the year. Rinderpest was prevalent in the district, except in the Núzvíd division. The Stock Inspector states that the ryots were entirely opposed to the segregation of sick animals and the burial of carcasses.

Anthrax occurred in all the taluks except Bezváda and Vissannapet; there was rarely a case found for treatment as the animals attacked die so rapidly, and many reports reached him (Stock Inspector) a fortnight or month after the outbreak. Braxy existed in Palnád, Vinukonda and Guntúr taluks. Epizootic aphtha prevailed in the taluks of Répalle, Bápatla, Guntúr, Bezváda, Nandigáma, Narsaraopet, Palnád and Vinukonda, but the mortality was very small.

7. *Bellary.*—The Stock Inspector of Bellary states that it is yet too early to leave medicine with ryots and even with village officers, as they don't believe in it and won't use it properly. He complains of the neglect village officers show in not submitting outbreak and progress reports

regularly, and he is doing his best to alter this. He advocates compulsion in effecting segregation, and believes that if a few are fined for not segregating their animals in an outbreak of contagious disease among them, the rest will quietly follow the advice given. His efforts to get segregation adopted have been nearly fruitless. He met with no cases of poisoning during the year.

8. *Chingleput.*—Rinderpest has been very prevalent during the year, and such a large mortality from this cause has never been experienced before; all the taluks were infected, but the taluks of Chingleput, Conjeeveram and Madurántakam suffered most severely. Anthrax, epizootic aphtha and variola also existed, but not to a great extent. He found the medicine issued by this department very efficacious, especially the carbolic balls. He notes that only wealthy ryots have sheds for their cattle, the others keeping their animals in their houses or in the streets. He noted that anthrax assumes a sporadic form and does not spread like rinderpest.

9. *Anantapur.*—Rinderpest was the most prevalent disease during the year, and it caused immense losses to the ryots; other diseases were met with, but they were thrown into the shade by the magnitude of the outbreak of rinderpest; anthrax, sheep-pox and epizootic aphtha existed, the latter nearly everywhere, but the mortality was trifling compared with the other disease. The blind belief of the ryots that rinderpest is the outcome of the wrath of a god or goddess conduced largely to the spread of the contagion through the district, and every taluk has been badly infected.

The deaths of sheep and goats are not often reported by village officers, but large numbers have died; their loss is not felt so much as that of cattle, for they do not take part in the cultivation of the land.

He (the Stock Inspector) states that the southern taluks of Hindupur and Madakasíra were infected from Mysore, where rinderpest was raging without any check being put upon it. He states that there is a strong belief among the ryots that rinderpest will not visit a village twice, but many instances of a return of the plague were met with. In some villages, the disease has assumed a chronic and milder type. The preventive and curative measures taken by ryots to get rid of the disease are none; they do not think that the disease can be stopped or prevented; advice is generally refused, and they will not segregate their sick although they know the contagious nature of the disease. He states that the ryots would use salt for their cattle if they could obtain it cheaply. He complains of the apathy of village officers in keeping the cattle mortality registers, &c., and says that they deem it of little importance. He notes that the price of cattle has doubled in consequence of the great losses.

He complains of being unable to effect much as he has such a large charge, and he says that at many villages the village officers try to get rid of him to avoid the trouble his recommendations necessitate.

10. *Kurnool.*—The Stock Inspector was on sick leave for nearly six months of the year; during the previous months he had fully inspected five taluks. The Márkápur taluk was visited by epizootic aphtha in a severe form; advice and medicine was freely distributed to ryots, and a large number of sick animals were treated. Rinderpest was very virulent in Pattikonda taluk. All the taluks were supplied with medicine. He complains of the delay in the submission of reports due to the carelessness of village officers. Many reports reached him a month after date. Slaughter-houses and meat markets were frequently inspected. The Inspector of South Canara and Trichinopoly visited this district—See remarks under the above district heading.

11. *North Arcot.*—The Stock Inspector was nearly four months on special duty in the Wynaad; the remainder of the year he worked in his own district.

Advice to the ryots to move their *healthy cattle* from infected localities was given and the plan was adopted in many instances. He states that this plan was advised so as to enable the ryots to help one another. In the village where disease prevailed topes were selected to which the sick were taken and segregated; as soon as he left the place the ryots began to attribute the deaths of their cattle to the neglect of their neighbours, and reverted to their old practices. In fact, the only measure adopted was the removal of the healthy cattle to some spot outside the infected village. The burial of carcasses was always advised, but many objections were always urged by the ryots. He has seen yet unaffected cattle licking the carcases of animals which have died from rinderpest and been left in the sun. He suggested to the ryots that they should get the skins tanned in the village and bury the carcass near trees as a fertiliser. He says that the carcasses were sometimes buried, but in many instances they were not. He speaks about the practice of Pariahs in exhuming the carcasses, and that the ryots often complained of this. Money is advanced to Pariahs by agents of tanneries for hides, and they get them when and where they can. He says tanneries are being established at every important place, and their sanitation is very bad owing to there being no supervision over them. Instructions for the use of cattle-owners regarding the prevention of disease were written on slips of paper and distributed to a few dealers, and it was found of practical benefit. Steps were then taken to print these slips and issue them on a larger scale. He informed the public as to the nature of rinderpest, the steps to be taken to prevent its extension and the benefit to be derived from cleanliness, well-ventilated sheds, &c..

12. *South Arcot.*—Rinderpest has been very severe in the district during the year. It was prevailing in the Cuddalore taluk during the early part of the year, and until June the Stock

Inspector was working in that taluk, endeavouring to segregate sick animals and treating them, besides doing what he could to improve the sanitation. He states that he found many difficulties in his way—difficulties due mainly to the ignorance and superstition of the ryots. He says that in his presence the ryots would adopt many of his suggestions, but as soon as he left the place they return to their own practices The majority of cattle-owners are poor and profess their inability to feed their animals on conjee, and they also say that they cannot afford to buy salt for them.

In June the Stock Inspector left for Tiruvannámalai to investigate a reported outbreak of disease among horses, and he found that there had been four ponies at the village where the disease was reported from, two of which had already died from paralysis due to exposure and bad sanitation, one more subsequently died from the same disease, and the remaining animal remained healthy. In many villages preventive measures were carried out by the ryots with the result that on after inspection the disease was found to be subsiding. He left Tiruvannámalai for Chidambaram taluk where rinderpest was reported to be prevalent and inspected parts of the Tindivanam taluk *en route*. In August he was directed to assist in establishing hospital pounds under Act II of 1866 which was brought into force in the district on 22nd August 1888. Cuddalore, Villupuram, Chidambaram and Vriddháchalam taluks were badly infected and pounds were first erected in Chidambaram. He met with very many difficulties in getting animals segregated. Owners refused to send them and removed them to another village to hide them. He established pounds in Chidambaram and Vriddháchalam taluks and left in September for Cuddalore taluk to establish pounds there. He next visited Villupuram taluk. In October two probationary Stock Inspectors were sent into the district for duty. He showed them the way to go to work and afterwards proceeded to inspect the pounds and villages infected in the Cuddalore taluk. In November he attended the cattle fair at Tiruvannámalai, as also did the Sub-Assistant Director of Agriculture and one of the probationers. He then visited the four taluks in which pounds had been erected in order to collect information for a report on their working. In January he was busy in the taluks of Chidambaram, Tindivanam and Villupuram, and worked in the Cuddalore taluk during February and March.

He met with no cases of cattle-poisoning during the year. He notes that the owners of diseased cattle take very little trouble to give notice of an outbreak to the village officers, and often try to hide their sick animals.

13. *Salem.*—At the beginning of April 1888 the Stock Inspector was sent to Devikolam and Shembaganur, Palni Hills, to transport the Amrat Mahal cattle of Government to the stock depôt at Hosúr. He took twenty head of stock through the Madura and Salem districts, losing three on the road (one old cow, one bull and one bull calf). One cow calved on the road; the stock arrived in poor condition and he had many difficulties to overcome. The duty was performed in a very satisfactory manner; the cattle were very wild, and as the weather was hot, could only be marched at night. He averaged over ten miles a day on his journey. He attended the Chittrai festival and cattle fair at Madura in April. He was transferred to Anantapur from May till October 1888, and worked in the taluks of Hindupur and Madakasíra. Rinderpest was prevalent there, and many cases of anthrax were met with. In October he was transferred to the Salem district where he is now working. The taluks of Hosúr, Atúr, Salem, Krishnagiri and Námakal have been visited and rinderpest was the principal disease met with. He is hopeful that the importance of segregating the sick and observing better sanitary measures is now becoming recognised by the ryots, but they still neglect to carry this into effect. The Government breeding bulls in the Salem district were all inspected during the month of January 1889. He has castrated two ponies during the year successfully. He came across two cases of deliberate poisoning. He attended the Salem exhibition in February.

14. *Coimbatore.*—The Stock Inspector was working in this district for the greater part of the year and was transferred to Madura in February 1889. Rinderpest has been more severe during this year than for many years past, and the losses have been great. The disease entered the Coimbatore district from Mysore. He thinks that the infection spread in the line of the great cattle fairs in the south; the losses to many breeders have been very heavy and many ryots have not the cattle left to till their lands.

He has a good opinion of salt as a preventive; his own cart bullocks which get it are freely taken to infected villages and they remain healthy. The Cattle Disease Prevention Act was introduced at Kollegál and Bhaváni taluks. He states that the Pariahs do all they can to disseminate rinderpest as it is a source of large profit to them. He states that only 5 per cent. of deaths are recorded. The remarks refer also to Madura district.

15. *Trichinopoly.*—During April 1888, the Stock Inspector was working in the Trichinopoly district. In May he was transferred to Anantapur for duty and worked there in the Gooty and Tadpatri taluks until September when he was transferred to Kurnool, where he worked in the Nandikótkur and Márkápur taluks until December 1888, when he was transferred to the Trichinopoly district. He has been working in Perambalúr and Musiri taluks of this district. During April and part of May 1888 he visited the taluks of Udayárpálaiyam and Trichinopoly. Rinderpest has been the principal disease he has met with, other diseases being of much less frequence and importance. In Anantapur he met with a very large number of cases of this disease, and the mortality was great He states that the village officers do not take much interest in endeavouring to arrest the progress of contagious cattle disease; that stock owners are not

alive to the importance of segregation. He impounded many sick cattle, but directly his back was turned, the owners took them back to their houses, and in most cases village officers say nothing to prevent them. (This refers to his work in Anantapur).

Many villages, as soon as they become infected, send the healthy cattle to other places, and keep only in the village some milch cows and sick animals; those attacked among the herds removed are sent back to the village; by this means many villages escaped very severe losses. There is a prevailing notion among ryots that the medicines supplied by the Stock Inspectors kill instead of cure; this idea has arisen because the ryots will allow no treatment to their sick animals for the first few days and only when they have given up hoping do they apply to the Stock Inspectors. There is a proverb current which being translated means " starvation is the essence of medicine, " and on this principle native treatment is conducted. In Anantapur the ryots are not in the habit of giving any green food or conjee to animals attacked by rinderpest, as they say that the green food will purge their cattle as much as the disease already does, and the Telugu name for conjee and rinderpest is similar, so they do not give conjee.

The number of cattle he was able to treat was very much smaller than the number of sick cattle he inspected. He often had to refuse treatment to animals as they were brought to him in a dying condition, and he found that by doing this he increased the belief in the medicines he used. He has always found a difficulty in getting his instructions carried out. In most villages prescriptions of bazaar medicines have been left with the ryots for the treatment of rinderpest, anthrax, &c.

He met with no cases of poisoning during the year. The importance of the use of salt for cattle as a preventive of disease is not recognised by stock owners generally in Anantapur, Kurnool and Trichinopoly.

16. *Madura.*—See Salem and Coimbatore Inspectors' remarks.

17. *Tinnevelly.*—During the whole of the year the Stock Inspector has been working in the district rinderpest appeared during the last quarter of the previous year and prevailed all the year under remark. It was first reported from a village in Sankaranainárkoil taluk where it was introduced from the northern district (Madura) and from which it spread in all directions; every taluk has been infected; other diseases have almost disappeared. The disease has caused a very large mortality throughout the district. Reports from villages have been very irregular and he is doing his utmost to improve this with some success.

18. *Malabar.*—Rinderpest and foot-and-mouth disease have been the diseases prevalent in the district during the year, and the former was very severe. It first broke out in the Wynaad and spread to all the other taluks. Wynaad and Walawanád have been very severely infected. The disease was very virulent; buffaloes suffered severely.

He met with no cases of poisoning during the year; he has explained the nature of the prevailing diseases among cattle to the ryots at every opportunity, together with advice as to treatment, prevention, &c.

19. *South Canara.*—The district was without a Stock Inspector from May till October when he was on duty in Anantapur and Kurnool.

Rinderpest prevailed during the year, the taluks of Kásaragód and Uppinangadi being badly infected; other diseases were limited in extent and caused no large losses. He states that anthrax being so rapidly fatal does not admit of any successful treatment. He notes that the medicines used are very useful; but that there is a prejudice in some parts among the ryots against the use of Government medicines. Common salt as a preventive of disease was found useful and some cattle owners have recognised this. He states that the ryots know that rinderpest is contagious but that they do not yet see the benefits to be derived by adopting the preventive measures advised, for they view the disease as being due to the anger of a goddess (" Mari ") and that it is useless to try to stop it at present.

He complains of the want of punctuality and the indifference shown by village officers it the submission of the outbreak reports and quotes an instance of an outbreak of rinderpest an the head-quarters of the Revenue Inspector raging for two months and no report being made of it.

He castrated three bulls in March and instructed two people in the method of performing the operation—one, the butcher of Mangalore; the other a popular native cow doctor of Mangalore, and he states that they can now perform the operation without assistance. He brought to light one case of poisoning.

20. *Tanjore.*—From 1st April to 15th May 1888 he was working in Negapatam, Tiruturaipúndi and Patukóta. May 16th to June 30th he worked in the Anantapur district, Penukonda taluk. He returned to Tanjore on July 1st and worked in the Patukóta taluk. The Act (Act II of 1866) was introduced on July 30th, 1888, in the taluks of Kumbakónam, Máyavaram and Shiyáli. About this time, and while the Stock Inspector was working in Patukóta taluk, a man personated a Stock Inspector in the district and levied a tax on the cattle and sheep; he was eventually arrested and sentenced to 21 months' imprisonment.

Rinderpest was very prevalent and anthrax also was severe, but not to the same extent as rinderpest. The taluks of Shiyáli, Máyavaram and Kumbakónam were most infected. He freely distributed medicines which were much appreciated, and he states that advice is not listened to. He notes the evils resulting from the practice of collecting the hides of animals and

storing them in depôts, and he quotes the case of a village in Kumbakónam taluk in which there are 15 hide shops and each is able to store 1,000 hides. He states that the places are in a very insanitary condition, that the hides are dried on the public road and that rinderpest and anthrax frequently appear. He worked in the Tanjore district the rest of the year.

21. *Medicines.*—A statement of the quantities of medicines supplied to districts during the year is given below and in many parts of the Presidency they are appreciated by the ryots. An improvement has been made in the carbolic balls by adding camphor to them, and the results gained by the use of this medicine in rinderpest have been satisfactory; it is very difficult to give figures in support of this statement as in the large majority of cases they are distributed to cattle owners for use and no record is kept, but the owners ask for more; disinfectants were supplied to many districts for the use of Stock Inspectors; more could not be sent, as the whole stock was exhausted, and I think it is hopeless to try and distribute enough of these disinfectants to every infected village in this Presidency. Regarding the use of medicines by cattle owners, every endeavour has been made to supply them with the simplest form of remedy possible, and the directions are very plain, but even though this is the case many mistakes are made and then the cattle owner loses confidence in the remedy; unless he can cure his animal in one or two doses he thinks the medicine useless; of course there are many exceptions to this and many instances in which medicines are intelligently administered and their efficacy acknowledged.

District.	Purgative for rinderpest, anthrax and tympanitis for first stage.	Astringent powder for rinderpest, second stage.	Carbolic balls for anthrax and rinderpest, first stage.	Disinfectants.		Cinchona febrifuge.	
	DOSES.	DOSES.	DOSES.	CWTS.	LB.	LB.	OZ.
Anantapur	..	1,950	2,150	1	18	..	
North Arcot	..	250	1,250	0	30	..	
South Arcot	..	2,250	2,200	3	0	..	
Bellary	500	1,500	1,000	1	60	..	
South Canara	..	2,500	3,000	2	0	..	
Chingleput	..	..	100	..		..	
Coimbatore	..	1,000	1,000	1	30	..	
Cuddapah	..	..	..	..		..	
Ganjam	..	500	500	..		..	
Godávari	..	1,200	1,200	2	0	..	
Kistna	150	2,500	1,000	2	0	..	
Kurnool	..	1,000	2,000	1	0	..	
Madras	..	250	300	1	0	..	
Madura	..	500	500	1	0	0	9½
Malabar	..	1,000	3,009	2	0	..	
Nellore	..	500	1,000	..		..	
Nílgiris	..	1,450	3,400	1	30	..	
Salem	50	500	350	1	0	..	
Tanjore	..	2,100	3,700	1	8	..	
Tinnevelly	..	..	213	..		..	
Trichinopoly	..	2,000	2,000	1	0	0	9½
Vizagapatam	..	..	..	..		..	
Total ..	700	22,950	29,872	22	64	1	3

22. *Experiments.*—During the year I received a letter through the Collector of Anantapur, written by a planter living in the Wynaad, containing an account of a specific for rinderpest; this cure was stated to be infallible and to save all animals brought under treatment. It consisted in expressing the blood, fat, and fluids generally of the flesh of an animal which had died from the disease, making an infusion in cold or tepid water and administering a pint or more to the sick animal; a few trials were made by myself and the Stock Inspectors with the results as given below, but it was found difficult to induce cattle owners to allow their animals to be treated in some instances.

—	Animals		
	Treated.	Recovered.	Died.
Madras Municipality (Monegar Choultry) ..	16	8	8
Anantapur	5	1	4
Malabar	4	2	2

From these figures the wonderful efficacy of the treatment is hardly borne out, but further trials shall be made and the result noted.

Cinchona Febrifuge—Has been tried as a remedy for rinderpest with some slight hope of being of use in the early stages of the malady; the experiment is being continued, and I shall be able to form an opinion as to the benefit of the medicine at a future date.

23. *Statistics.*—As the statistics for the year, compiled in the Board's office, have been remarked on quarterly and a review of the figures of cattle mortality for the year submitted to the Board, further reference to them is not necessary in this report.

24. *Act II of* 1866.—An exhaustive report on the working of this Act has lately been submitted to Government, and there is little to add to it. Draft rules for the guidance of pound keepers in working the Act have been submitted to the Board, but as yet no orders have been passed upon them.

25. *Financial Statement.*—The budget grant for the year under report was exceeded by Rs. 7-1-0 in consequence of the inclusion in the accounts of the cost of European medicines for 1889-90 (see enclosure No. IV).

The amount collected by this department of the outstanding debts of the Veterinary Hospital, Saidápet, was credited to Government and the bills of remaining debts were handed over to the Acting Principal of the Agricultural College, Saidápet, in compliance with G.O., No. 803, dated 17th November 1888.

26. *Agricultural Exhibition.*—The exhibitions at Mysore, Bellary and Salem were attended by me during the year, and as the two latter have been already fully reported on, it is unnecessary for me to say more. The Mysore Exhibition was, from my point of view, a failure, as the show of cattle was very poor, a thing to be deplored, as the province is so noted for its breeds. I think that the long-continued prevalence of rinderpest in the country had a great deal to do with the undoubted failure in this particular. A very excellent lot of country-bred horses bred by the Mysore Government at Koongul, not exhibited for competition, comprised some very fine animals and showed that good horses can be bred in Southern India.

27. *Cattle Poisoning.*—In Tanjore two persons were sentenced each to six months' rigorous imprisonment for poisoning a buffalo with the juice of a plant called "Kalli" (*Euphorbium antiquorum*). They inserted a rag steeped in the juice into the vagina of the animal and were caught with a piece of the rag used in their possession and convicted. In South Canara a man was charged with poisoning a cow with the seeds of "Chiplotte" (*Cocculus Indicus*), but was discharged for want of sufficient evidence.

In Gudiyátam taluk, North Arcot, the Stock Inspector states that cattle poisoning is of frequent occurrence but very difficult of detection. In Salem, Atúr taluk, Atúr village, a case of attempted poisoning occurred; a bolus of fresh grass was found thrown in front of an animal which was supposed to have eaten some of the poison, and after examination by the Chemical Examiner Madras, was found to contain arsenic; the attempted prisoner absconded and the animal recovered. The same Stock Inspector (Salem) detected a case of poisoning at the village of Lapatchi Hindupur taluk, Anantapur district, where a cloth soaked in madar juice and powdered glass was introduced per rectum and the animal died within 24 hours; the criminal was not found.

28. *Remarks.*—In April 1888 I visited Hosúr taluk of Salem district where rinderpest was prevalent and for the purpose of seeing the stock farm at Perandapalli. I also visited the Anantapur district. During the month of May extra Stock Inspectors were posted to the Anantapur district. I also visited several taluks there. The Act for the prevention of cattle diseases was brought into operation there during this month. During June I was engaged at head-quarters and was a member of the Board of Examiners in the Higher Examinations in Science, Arts and Industries (Veterinary Surgery and Medicine and Animal Physiology) at Saidápet. In July I again visited the Anantapur district and was busy in the Gooty and Anantapur taluks. In August I proceeded to the Nílgiris where rinderpest had been very prevalent but which I found rapidly subsiding. At Ootacamund I inspected the castration depôt and Government stallion.

In September I proceeded to the Tinnevelly district to examine the Stock Inspector for promotion and to make inquiries about a native cattle practitioner in the Sankaranainárkoil taluk and submitted a report on my visit. While there the Stock Inspector, two Probationers and myself treated an outbreak of rinderpest at an adjacent village with the assistance of the local cattle doctor. A hospital pound was erected and all the sick animals were segregated and treated in the pound, numbering about 20. The treatment was commenced on the 19th instant and conducted by me until the 23rd, during which time all the sick animals were kept in the pound; the Stock Inspector and the native cattle doctor were left in charge to continue the treatment when I left. The next day a heavy rainfall occurred, and despite the efforts of the Stock Inspector, the owners of sick cattle removed them to their houses as the pound was not waterproof, so the attempt at complete segregation was not successful. The Stock Inspector remained at the village until the 3rd of October and treated the sick, but was unable to again effect complete segregation altogether 31 animals were treated, of which 12 recovered and 19 died; the disease was in virulent form, and during the last half of the outbreak, there being but few attempts at segregation the disease still continued, but it subsided about the beginning of October, no cases having occurred after the 1st instant; the infected cattle sheds were disinfected and sulphur was freely burnt in the village. The disease which made its appearance about the 17th or 18th of September was eradicated by the 2nd of October, which I consider satisfactory (although the rate of mortality was high). Rinderpest generally remains two or three months at a village unless proper preventive measures are adopted. On my way back to Madras I halted two days at Cuddalore and examined the Stock Inspector of that district for promotion. During this month I received

information of a severe outbreak of rinderpest among the municipal bullocks at the Monegar Choultry, Madras, which was attended to immediately by the Probationers of the department (no Stock Inspector could be spared and I was in Tinnevelly); subsequently the Probationers worked under my supervision and the disease was controlled and eradicated in a month (a report on this outbreak was submitted to the Board).

During October I attended the Mysore Exhibition and officiated as a judge in the live-stock section. I also visited the Kurnool district where I examined two Stock Inspectors for promotion and on my way back I examined the Anantapur Stock Inspector. In November I proceeded to Malabar district and was on tour in the Walawanád and Ernád taluks for three weeks. On returning I examined the Stock Inspector of Salem at Hosúr and again visited the stock farm at Perandapalli. In December I visited a few villages in Chingleput district. In January 1889 I was sent to South Arcot district to make enquiries and report on the long-continued prevalence of cattle disease there—*vide* my letter to the Board, No. 148, dated 8th February 1889. I also proceeded to Bellary in connection with the Agricultural Exhibition. In February I attended the exhibitions at Bellary and Salem and afterwards proceeded to the Trichinopoly district on inspection duty where I remained until the 15th March when I proceeded to the Madura district and returned to Madras on 3rd of April.

29. Taking into consideration the difficulties met with by the Stock Inspectors in their daily work, difficulties which arise from the indifference and unwillingness on the part of the ryots to carry out the sanitary measures and treatment of sick animals advised by the Stock Inspectors, I consider that, on the whole, they have worked satisfactorily; some men have shown more energy than others, but all have labored under the disadvantage of not being able to enforce their recommendations. In the presence of the Stock Inspectors their advice is very frequently adopted, but directly they leave the neighbourhood no further trouble is taken and it is disregarded. Nearly all the Stock Inspectors complain of the little assistance they receive from village officials, and as the Stock Inspectors can hardly hope to become personally acquainted with the majority of the ryots in a district, this want of interest on the part of village officers in a subject which so nearly concerns them has a very marked effect on their work. Statements are appended showing the villages inspected and cases treated by the Stock Inspectors during the year.

The office work of the department is considerable and it is more than one clerk should be called upon to do. The compounder and clerk sanctioned during last year is always occupied in compounding medicines and affords but little assistance in the office. The head clerk has worked hard the whole of the year and at present the office work is up to date.

APPENDIX II.

TABLE showing the Sick and Lame Animals treated by Stock Inspectors during the official year 1888-89.

Names.	Number of villages inspected.	Number of sick animals admitted for treatment.	Number of animals recovered.	Number of animals that died.	Number of cases unknown.	Remarks.
P. Raghava Pillai	..	274	..	..	274	On sick leave for six months.
K. Padmanabhayya	212	816	418	344	54	Worked in North Arcot and Malabar.
M. Venketramana Sastry	252	651	529	122	..	Transferred from Coimbatore to Madura in February 1889.
S. L. D'Silva	..	331	169	162	..	Transferred to Educational Department, 27th July 1888.
A. Canthiah Mudaliar	168	597	113	94	390	
B. K. Santayya	224	404	188	37	179	Worked in South Canara, Anantapur and Kurnool.
M. Kuppoosawmy Sastry	201	170	142	28	..	
K. Sethu Row	352	200	74	98	28	
C. Viswanatha Iyer	208	297	193	90	14	
V. P. Subramania Mudaliar ..	171	1,266	419	253	594	
K. Ramen	225	922	53	1	868	
R. Narayana Row	201	317	77	57	183	Worked in Trichinopoly, Anantapur and Kurnool.
V. Seethambir Devoo	270	387	284	89	14	
G. Rungiah Naidu	87	127	84	25	18	Worked in Chingleput, Nellore and Kurnool.
M. Hussain Ali Saib	254	534	479	30	25	Worked in Madura, Anantapur and Salem.
B. Subramania Iyer	218	415	329	86	..	
S. A. Streenavassa Ragava Iyengar.	556	902	721	158	23	
Total ..	3,599	8,610	4,272	1,674	2,664	

APPENDIX III.

STATEMENT showing the Number of Villages inspected by the Stock Inspectors in each taluk of the districts to which they were posted for duty during the official year 1888-99.

1		2		3		4		5		6		7		8	
V. Seethambir Devoo.		M. Kuppoosawmy Sastry.		C. Viswanatha Iyer.		B. Subramania Iyer.		K. Padmanabhayya.		A. Canthiah Mudaliar.		R. Narrayana Row.		M. Bapenally.	
Godávari and Kistna.		Kistna.		Anantapur.		Bellary.		North Arcot and Malabar.		Chingleput.		Trichinopoly, Anantapur and Kurnool.		Madura, Anantapur and Salem.	
Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.
Cocanada ..	30	Répalle ..	28	Anantapur ..	57	Adóni ..	2	Wálajápet ..	6	Madurántakam	57	Trichinopoly .	4	Madura ..	1
Pithápuram		Bápatla ..	5	Gooty ..	53	Alúr	30	Arcot ..	31	Conjeeveram .	39	Musiri ..	4	Dindigul ..	9
zemindari ..	5	Guntúr ..	33	Tadpatri ..	19	Bellary ..	111	Wandiwash ..	9	Saidápet ..	7	Udayárpálayam	6	——	
Peddápuram ..	10	Narsaraopet ..	29	Dharmavaram.	23	Hadgalli ..	11	Pólúr ..	1	Tiruvallúr ..	7	Perambalúr ..	34	Madakasíra ..	57
Amalápuram ..	34	Palnád ..	32	Penukonda ..	33	Harpanahalle.	14	Chittoor ..	36	Chingleput ..	38	——		Hindupur ..	76
Rajahmundry .	12	Gudiváda ..	10	Hindupur ..	16	Hospet ..	17	Vellore ..	6	Ponnéri ..	..	Gooty ..	95	——	
Yernagúdem ..	3	Sattenapalle ..	12	Madakasíra ..	7	Kúdligi ..	33	Gudiyátam ..	43			Tadpatri ..	22	Hosúr ..	40
Bhadráchalam.	103	Bandar ..	16			Ráyadrug ..	..	Palmanér ..	28			——		Atúr	36
Narsápur ..	16	Nandigáma ..	7					Chandragiri ..	11			Nandikótkur .	33	Krishnagiri ..	4
Ramachandra-		Vinukonda ..	15					——				Márkápur ..	3	Salem ..	24
puram ..	46	Bezváda ..	14					Wynaad ..	39					Námakal ..	7
Tanuku ..	8							Calicut ..	2						
Kistna.															
Gudiváda ..	3														
	270		201		208		218		212		148		201		254

Statement showing the Number of Villages inspected by the Stock Inspectors in each taluk of the districts to which they were posted for duty, &c.—*cont.*

9		10		11		12	
M. Venkataramana Sastry.		V. P. Subramania Mudaliar.		K. Sethu Row.		B. K. Santaya.	
Coimbatore and Madura.		Tinnevelly.		South Arcot.		South Canara, Anantapur and Kurnool.	
Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.
Polláchi ..	28	Srivilliputur..	14	Chidambaram.	99	Mangalore ..	41
Kollegál ..	120	Sankaranainár-koil ..	9	Villupuram ..	33	Kásargód ..	54
Coimbatore ..	56	Tenkási ..	21	Tindivanam ..	22	Uppinangadi.	15
Satyamangalam.. ..	3	Sátúr ..	3	Cuddalore ..	142	——	
Palladam ..	6	Tenkarai ..	18	Vriddháchalam	21	Dharmavaram.	62
——		Ambásamudram ..	50	Tirukoilúr ..	3	Penukonda ..	35
Madura ..	16	Tinnevelly ..	40	Kallakurchi .	..	Tadpatri ..	4
Periyakulam..	19	Nánguneri ..	10	Tiruvannámalai	32	——	
Dindigul ..	4	Otapidáram ..	6			Nandyál ..	13
	252		171		352		224

13		14		15		16	
K. Ramen.		G. Rungiah Naidu.		S. A. Streenevasa Ragava Iyengar.		P. Raghava Pillai.	
Malabar.		Chingleput, Nellore and Kurnool.		Tanjore and Anantapur.		Kurnool.	
Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.	Taluks.	No. of villages inspected.
Wynaad ..	8	Saidápet ..	3	Tanjore ..	2	The Stock Inspector was granted leave of absence (sick leave) for 6 months; was at the expiration of the leave posted to another district. His records are at his previous headquarters, and he has not been able to obtain them.	
Calicut ..	38	Tiruvallúr ..	5	Negapatam ..	15		
Kóttayam ..	30	Ponnéri ..	4	Kumbakónam.	187		
Chirakal ..	27	Madrántakam.	8	Máyavaram ..	38		
Ponáni ..	2	——		Tiruturaipúndi ..	48		
Pálghat ..	4	Nellore ..	15	Patukóta ..	76		
Kurumbranád.	23	Atmakúr ..	4	Shiyáli ..	150		
Ernád ..	11	Gúdúr ..	7	——			
Walawanád ..	41	Rápúr ..	4	Penukonda (Anantapur district) ..	40		
		——					
		Rámalakót ..	18				
		Nandyál ..	10				
		Cumbum ..	6				
		Márkápur ..	3				
	184		87		556		

APPENDIX IV.

Remarks on the Mortality Statistics of Stock for the year 1888-89.*

Cattle.

During the year 1888-89, *rinderpest* has been the most prevalent and fatal disease among the cattle of the Presidency. No less than 95,778 deaths from this cause have been reported during the year, and if the deaths reported as due to diarrhœa and dysentery be taken as cases of rinderpest (and that they should be classed as such I am perfectly certain), the reported mortality reached the large figure of 143,720. The districts which have suffered most from this disease among the cattle during the year are South Arcot, Kurnool, Anantapur, Malabar, Madura, Godávari, Tinnevelly, Chingleput, Cuddapah and North Arcot, and it will be noticed that the disease was very widely prevalent in the Presidency.

Anthrax.—This disease was not so prevalent as was rinderpest: 19,881 deaths of cattle are reported from the Presidency for the year. The districts which suffered most from its ravages were North Arcot, Cuddapah, Chingleput and Tanjore.

Foot-and-mouth disease—Epizootic aphtha.—This disease has not caused much mortality during the year; 5,259 cases are reported, but this number represents a very large number of attacks as the mortality seldom exceeds 2 or 3 per cent. The districts which have reported most mortality from this cause are Tinnevelly, Coimbatore, Madura, Trichinopoly, Salem, Chingleput, Malabar, Nellore and Kurnool.

Diarrhœa and dysentery.—I have remarked on this subject under the head of rinderpest.

Variola—Has caused but little mortality during the year, 2,844 deaths being reported for the year. The districts of Tinnevelly, Malabar, Coimbatore and South Canara have reported the greatest mortality.

The diseases above noted are those which caused the greatest losses among the cattle of this Presidency. The total loss reported for the year of cattle from disease was 196,138.

The figures for the four quarters are as follows :—

	Reported mortality of cattle.
Quarter ending 30th June 1888	45,308
„ „ 30th September 1888	43,648
„ „ 31st December „	59,557
„ „ 31st March 1889	47,625

There was a large increase in the death-rate during the quarter ending 31st December 1888.

Losses from Causes other than Disease.

Natural decay.—A very large mortality from this cause was reported; the totals for the four quarters were as under :—

Quarter ending 30th June 1888	20,633
„ „ 30th September 1888	29,721
„ „ 31st December „	42,808
„ „ 31st March 1889	36,285

During the quarter ending 31st December 1888 (the same quarter in which there was a large increase in mortality from disease), a large increase in the death-rate was reported. The total reported mortality for the year from this cause was 129,447.

Accidents.—8,850 deaths are reported from the Presidency from this cause.

Snake-bite.—The mortality for the quarters of the year is as follows :—

Quarter ending 30th June 1888	337
„ „ 30th September 1888	659
„ „ 31st December „	972
„ „ 31st March 1889	595

The greatest loss from this cause was reported during the season of greatest mortality from disease and natural decay, viz., the months of October, November and December.

Poisoning.—During the year 268 cases of cattle poisoning were reported. During the quarter ending 30th September a large number of cases occurred, viz., 102.

* See paragraph 23 of annual report of Inspector of Cattle Diseases. Since Mr. Hazelton penned these remarks, the statistics have been checked and corrected where necessary.

The figures for the year are—

Quarter ending	30th June 1888	17
,, ,,	30th September 1888	102
,, ,,	31st December ,, ...	89
,, ,,	31st March 1889	60

Wild animals—Caused 9,526 deaths during the year; the districts from which most mortality was reported were Malabar and South Canara.

The total loss in cattle during the year from all causes was reported to be 346,792.

SHEEP AND GOATS.

All diseases—

Quarter ending	30th June 1888	3,443
,, ,,	30th September 1888	4,256
,, ,,	31st December ,, ...	7,119
,, ,,	31st March 1889	14,457

During the last quarter of the year there was a very large increase in mortality owing to the prevalence of variola ovina, diarrhœa and dysentery, rinderpest and anthrax in many districts in the Presidency.

Natural decay.—Large number of deaths from this cause were reported during the last half of the year, the total for the year being 30,174.

Snake-bite and poisoning.—Very few cases of death from either cause were reported.

Wild animals—Caused a reported loss of 7,362, Cuddapah reporting a large number of deaths from this cause.

The total loss in sheep and goats during the year from all causes was 78,662, the loss for each quarter being as under:—

Quarter ending	30th June 1888	7,977
,, ,,	30th September 1888	16,359
,, ,,	31st December ,, ...	26,689
,, ,,	31st March 1889	27,637

HORSES AND PONIES.

All diseases and other causes.—99 horses or ponies are reported to have died from disease during the year and from causes other than disease 422: the figures shown below give the mortality by quarters:—

Deaths from all causes—

Quarter ending	30th June 1888	32
,, ,,	30th September 1888	199
	(101 natural decay)	
,, ,,	31st December 1888	160
	(76 natural decay)	
,, ,,	31st March 1889	130

The total reported mortality among horses and ponies for the year is 521.

(Signed) E. H. HAZELTON, V.S., A.V.D.,
Inspector of Cattle Diseases.

APPENDIX V.

STATISTICS of Cattle Mortality in the Madras Presidency for each district during the year 1888-89.

Districts.	Cattle. Total stock in the district.	Cattle. Deaths from Rinderpest.	Deaths from Diarrhœa and dysentery.	Deaths from Anthrax.	Deaths from Epizootic aphtha.	Deaths from Variola.	Deaths from All other diseases.	Total deaths fron diseases. Number.	Total deaths fron diseases. Per cent on stock.	Sheep and goats. Stock of the district.	Deaths from disease. Number.	Deaths from disease. Per cent. on stock.
1	2	3	4	5	6	7	8	9	10	11	12	13
Ganjam	232,925	154	120	271	90	..	1,127	1,762	·76	60,124	20	·03
Vizagapatam	120,362	322	349	129	125	127	246	1,298	1·08	41,573	339	·81
Godávari	589,552	6,378	5	1,064	53	..	39	7,539	1·28	114,231	163	·14
Kistna	964,224	761	1,236	450	96	77	1,865	4,485	·46	486,871	1,860	·38
Kurnool	582,697	8,459	976	723	268	1	4,961	15,388	2·64	554,409	1,966	·36
Bellary	600,803	4,003	186	1,215	136	78	1,276	6,894	1·15	681,357	2,778	·4
Anantapur	587,747	10,701	1,090	1,408	141	48	1,283	14,671	2·5	936,228	4,750	·5
Cuddapah	985,175	6,116	4,241	1,838	132	103	1,781	14,211	1·44	1,138,689	4,401	·38
Nellore	598,751	1,357	152	706	434	25	1,297	3,971	·66	553,857	538	·09
Chingleput	407,924	4,251	5,866	2,626	296	35	1,843	14,917	3·66	259,914	1,049	·4
North Arcot	731,861	5,118	8,304	4,250	211	74	1,162	19,119	2·61	668,012	1,506	·22
South Arcot	984,724	15,940	1,638	1,055	131	4	632	19,400	1·97	745,376	1,101	·15
Salem	967,275	1,312	1,338	378	226	20	482	3,756	·39	980,705	212	·02
Coimbatore	1,183,857	1,370	602	414	591	322	1,356	4,655	·39	1,255,764	1,188	·09
Trichinopoly	592,575	2,099	2,194	294	406	107	214	5,314	·9	905,313	497	·05
Tanjore	823,522	3,046	479	2,034	29	32	731	6,351	·77	445,124	63	·01
Madura	637,596	5,255	8,808	110	437	1	1,121	15,732	2·47	696,102	3,835	·55
Tinnevelly	483,758	3,468	8,313	514	1,058	1,048	2,350	16,751	3·47	787,986	2,963	·38
Nílgiris	58,973	1,298	13	1	4	..	74	1,390	2·36	6,174	..	..
Malabar	901,206	9,956	1,839	92	305	324	499	13,015	1·44	62,335	36	·06
South Canara	663,888	4,431	197	321	91	415	190	5,645	·85	9,524	14	·15
Total ..	13,699,395	95,795	47,946	19,893	5,260	2,841	24,529	196,264	1·43	11,389,668	29,279	·26

Statistics of Cattle Mortality in the Madras Presidency for each district during the year 1888-89—*cont.*

Districts.	Horses and ponies.			Deaths from natural decay.			Deaths from accidents.			Deaths from snake-bite.		
	Number in the district.	Deaths from disease.		Cattle.	Sheep and goats.	Horses and ponies.	Cattle.	Sheep and goats.	Horses and ponies.	Cattle.	Sheep and goats.	Horses and ponies.
		Number.	Per cent. on stock.									
	14	15	16	17	18	19	20	21	22	23	24	25
Ganjam	184	..	..	801	22	..	59	..	..	26	..	..
Vizagapatam	148	1	·68	736	126	1	80	8	2	28	..	..
Godávari	1,666	..	..	3,619	58	5	143	19	..	85	1	..
Kistna	3,636	2	·05	9,437	559	24	827	227	7	186	2	..
Kurnool	2,915	26	·9	7,681	415	23	808	119	9	185	21	1
Bellary	4,124	12	·3	4,315	743	20	421	224	6	27	1	..
Anantapur	3,043	32	1·05	4,716	1,249	29	334	940	10	33	5	1
Cuddapah	1,188	4	·33	4,709	667	11	549	316	3	89	27	2
Nellore	1,063	2	·19	3,370	670	15	554	4,550	3	93	12	..
Chingleput	1,089	1	·09	9,724	1,926	16	478	1,104	3	381	34	2
North Arcot	1,781	2	·11	10,425	1,588	15	395	162	3	333	15	2
South Arcot	2,608	5	·2	6,256	585	11	301	173	2	185	5	..
Salem	3,758	1	·02	1,290	396	2	253	154	..	67	26	..
Coimbatore	4,143	2	·05	4,579	2,089	20	293	382	3	67	20	2
Trichinopoly	734	1	·13	8,413	5,960	2	492	806	1	131	35	..
Tanjore	1,543	..	..	9,136	1,577	3	405	26	..	175	4	..
Madura	2,931	8	·27	5,648	3,814	22	402	541	8	122	12	1
Tinnevelly	598	..	..	8,024	7,347	9	134	1,760	2	81	18	..
Nílgiris	1,102	..	..	964	22	4	250	1	..	10	1	..
Malabar	815	..	..	14,674	332	17	516	42	4	235	1	..
South Canara	185	..	..	10,954	29	7	1,315	31	2	48	1	..
Total ..	39,254	99	·3	1,29,471	30,174	256	9,009	11,585	68	2,587	241	11

Statistics of Cattle Mortality in the Madras Presidency for each district during the year 1888-89—*cont.*

Districts.	Deaths from poisoning.		Deaths from wild animals.			Deaths from all causes amongst					
						Cattle.		Sheep and goat.		Horses and ponies.	
	Cattle.	Sheep and goats.	Cattle.	Sheep and goats.	Horses and ponies.	Number.	Per cent. on stock.	Number.	Per cent. on stock.	Number.	Per cent. on stock.
	26	27	28	29	30	31	32	33	34	35	36
Ganjam	1	..	48	14	1	2,697	1·16	56	·09	1	·5
Vizagapatam	2	..	47	39	..	2,191	1·82	512	1·23	4	2·7
Godávari	3	..	136	77	2	11,525	1·96	318	·27	7	·42
Kistna	6	..	204	149	3	15,145	1·57	2,797	·57	36	·99
Kurnool	24	23	488	929	27	24,574	4·22	3,473	·62	86	2·95
Bellary	..	..	142	217	18	11,799	1·96	3,963	·58	56	1·35
Anantapur	2	..	127	480	14	19,883	3·38	7,424	·79	86	2·83
Cuddapah	2	..	492	1,449	3	20,052	2·03	6,860	·6	23	1·93
Nellore	1	..	51	155	..	8,040	1·34	5,925	1·07	20	1·88
Chingleput	..	..	42	208	..	25,542	6·26	4,321	1·66	22	2·02
North Arcot	3	..	520	497	1	30,795	4·2	3,768	·56	23	1·29
South Arcot	34	..	47	48	..	26,223	2·63	1,912	·26	18	·69
Salem	..	..	375	890	1	5,741	·58	1,678	·17	4	·1
Coimbatore	..	..	453	721	10	10,047	·85	4,400	·35	37	·89
Trichinopoly	..	..	32	323	..	14,382	2·43	7,621	·84	4	·54
Tanjore	1	..	9	29	..	16,077	1·95	1,699	·38	3	·19
Madura	3	..	330	237	10	22,237	3·53	8,439	1·21	49	1·68
Tinnevelly	2	..	50	702	..	25,042	5·17	12,790	1·62	11	1·84
Nílgiris	..	..	331	10	5	2,945	4·99	34	·55	9	·81
Malabar	..	..	2,289	141	..	30,729	3·49	552	·89	21	2·58
South Canara	1	..	3,307	49	1	21,270	3·20	124	1·3	10	5·4
Total ..	85	23	9,520	7,364	96	346,936	2·53	78,666	·69	530	1·35

APPENDIX VI.

Statistics of Mortality among Cattle, Sheep and Goats, and Horses and Ponies in the Presidency of Madras for each month during the year 1888-89.

Months.	Number of deaths of cattle due to													Total number of deaths from all causes.
	Rinderpest.	Diarrhœa and dysentery.	Anthrax.	Epizootic aphtha.	Variola (sheep-pox, &c.).	All other diseases.	Total.	Natural decay.	Accidents.	Snake-bite.	Poisoning.	Wild animals.	Total.	
April 1888	10,888	817	1,229	332	54	1,265	14,585	5,929	581	99	3	614	7,226	21,811
May ,, ...	11,288	1,138	1,439	435	8	1,531	15,839	7,316	555	125	4	524	8,524	24,363
June ,, ...	11,004	1,046	1,223	203	14	1,394	14,884	7,388	410	115	..	514	8,427	23,311
July ,, ...	9,009	2,261	1,220	247	129	2,208	15,074	9,351	789	166	4	897	11,207	26,281
August ,, ...	7,939	2,601	1,255	168	72	1,853	13,888	9,994	786	211	8	880	11,879	25,767
September ,, ...	7,423	3,345	1,011	621	188	2,098	14,686	10,375	898	290	2	917	12,482	27,168
October ,, ...	6,704	5,174	1,823	564	288	2,569	17,122	11,974	996	299	6	1,009	14,284	31,406
November ,, ...	7,432	7,043	2,680	403	417	2,534	20,509	14,975	1,104	376	5	879	17,339	37,848
December ,, ...	6,880	7,760	3,672	505	512	2,725	22,054	15,884	953	303	7	890	18,037	40,091
January 1889	4,305	8,226	1,997	792	576	2,368	18,264	13,031	690	259	9	900	14,889	33,153
February ,, ...	6,545	3,781	1,284	527	276	2,012	14,425	11,227	500	172	10	725	12,634	27,059
March ,, ...	6,378	4,754	1,060	463	307	1,972	14,934	12,027	747	172	27	771	13,744	28,678
Total ..	95,795	47,946	19,893	5,260	2,841	24,529	196,264	129,471	9,009	2,587	85	9,520	150,672	346,936

Months.	Number of deaths of sheep and goats due to													Total number of deaths from all causes.
	Rinderpest.	Diarrhœa and dysentery.	Anthrax.	Epizootic aphtha.	Variola (sheep-pox, &c.).	All other diseases.	Total.	Natural decay.	Accidents.	Snake-bite.	Poisoning.	Wild animals.	Total.	
April 1888	352	1	56	66	448	377	1,300	712	243	1	..	279	1,235	2,535
May ,, ...	229	11	13	43	122	487	905	1,021	582	5	..	322	1,930	2,835
June ,, ...	477	9	37	84	171	460	1,238	1,020	85	4	..	260	1,369	2,607
July ,, ...	42	75	85	496	269	142	1,109	1,244	124	9	..	586	1,963	3,072
August ,, ...	170	68	146	5	440	784	1,613	1,233	276	18	..	690	2,217	3,830
September ,, ...	52	102	312	21	512	535	1,534	2,127	4,987	19	..	790	7,923	9,457
October ,, ...	145	81	288	17	361	702	1,594	2,903	1,989	23	..	909	5,824	7,418
November ,, ...	123	445	809	24	673	980	3,054	4,251	1,965	52	..	1,050	7,318	10,372
December ,, ...	448	407	360	39	370	848	2,472	4,821	589	22	..	996	6,428	8,900
January 1889	124	408	286	89	986	526	2,419	4,162	215	50	..	631	5,058	7,477
February ,, ...	853	509	267	16	883	1,636	4,164	3,315	203	19	..	341	3,878	8,042
March ,, ...	1,060	2,247	594	89	2,152	1,735	7,877	3,365	327	19	23	510	4,244	12,121
Total ..	4,075	4,363	3,253	989	7,387	9,212	29,279	30,174	11,585	241	23	7,364	49,387	78,666

Statistics of Mortality among Cattle, Sheep and Goats, and Horses and Ponies in the Presidency of Madras for each month during the year 1888-89—*cont.*

Months.	Number of deaths of horses and ponies due to													Total number of deaths from all causes.
	Rinderpest.	Diarrhœa and dysentery.	Anthrax.	Epizootic aphtha.	Variola (sheep-pox, &c.).	All other diseases.	Total.	Natural decay.	Accidents.	Snake-bite.	Poisoning.	Wild animals.	Total.	
April 1888	..	..	..	..	..	3	3	4	1	..	..	4	9	12
May ,, ...	..	1	1	..	..	..	2	4	1	..	..	2	7	9
June ,, ...	..	..	..	..	..	5	5	3	1	..	..	3	7	12
July ,, ...	..	..	..	..	..	10	10	19	1	2	..	7	29	39
August ,, ...	..	1	..	..	..	15	16	41	12	..	..	12	65	81
September ,, ...	..	..	..	..	..	20	20	42	11	2	..	5	60	80
October ,, ...	..	..	..	..	..	5	5	26	5	2	..	14	47	52
November ,, ...	..	2	..	..	..	10	12	19	10	1	..	10	40	52
December ,, ...	..	..	..	..	..	7	7	34	10	..	..	11	55	62
January 1889	..	..	..	..	..	6	6	18	7	1	..	14	40	46
February ,, ...	..	1	..	..	..	3	4	19	4	2	..	7	32	36
March ,, ...	..	..	4	..	1	4	9	27	5	1	..	7	40	49
Total ..	..	5	5	..	1	88	99	256	68	11	..	96	431	530

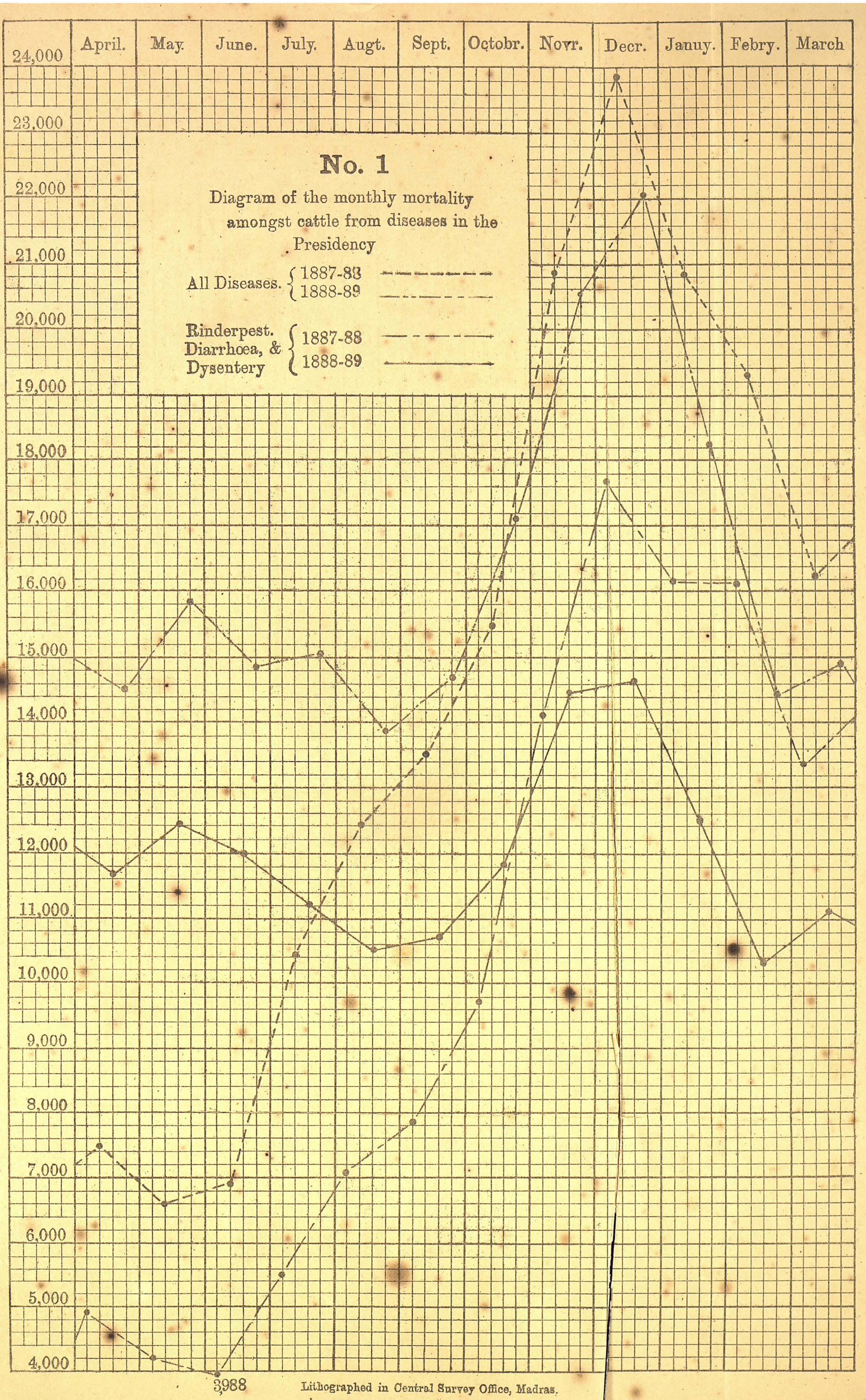
APPENDIX VII.

Statement showing the Mortality amongst Cattle in certain districts during the year 1887-88.

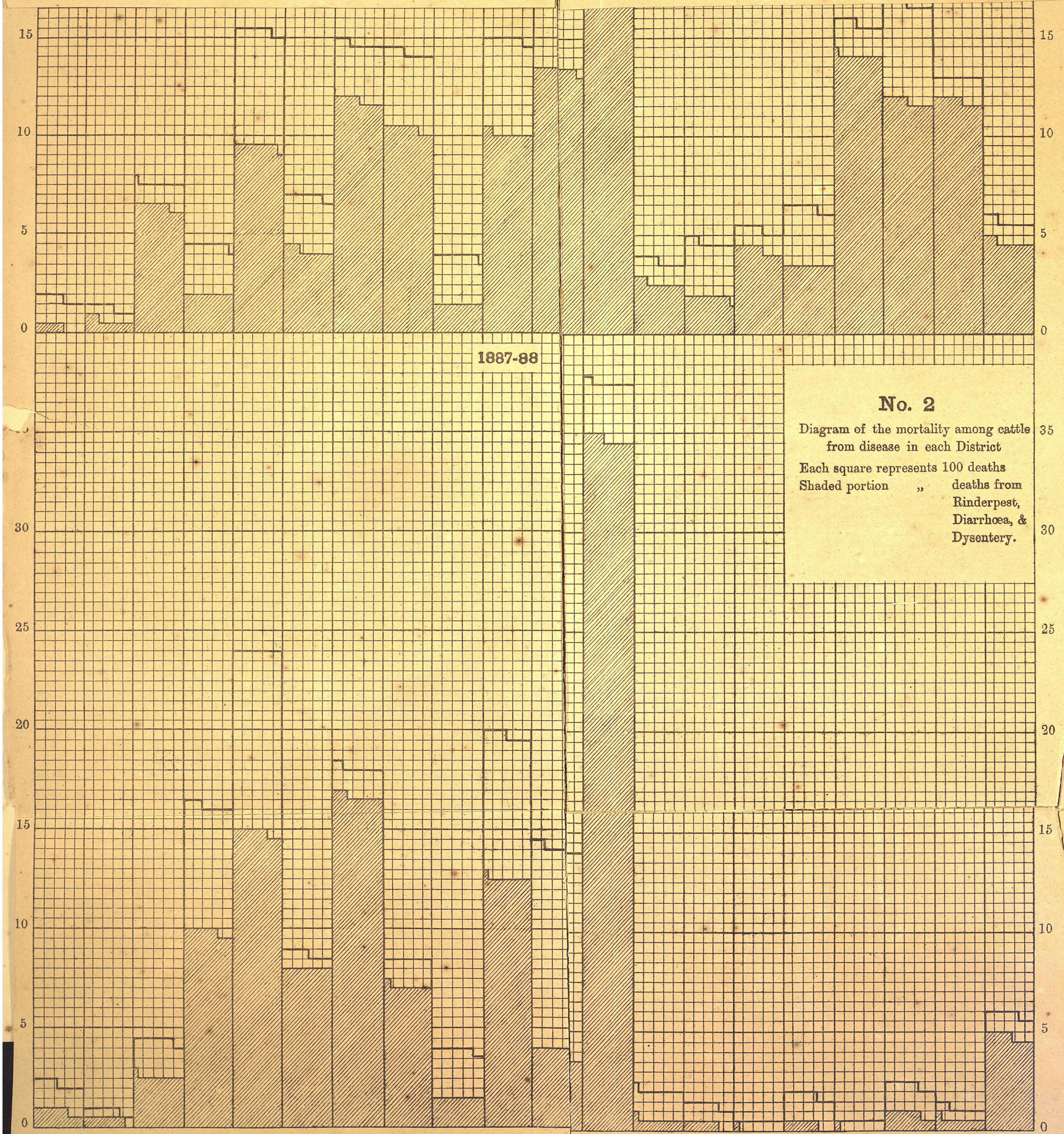
Districts.	April 1887.	May.	June	July.	August.	September.	October.	November.	December.	January 1888.	February.	March.
Rinderpest, Diarrhœa and Dysentery.												
Kurnool	2,165	1,747	1,320	1,269	1,477	1,352	1,688	1,074	561	652	804	736
Bellary	1,060	713	844	742	415	607	380	541	397	349	892	1,081
Anantapur	309	478	422	647	765	1,029	1,093	1,994	2,610	2,410	2,656	2,238
Cuddapah	198	208	109	284	300	229	400	602	694	1,097	1,517	1,439
Total ..	3,732	3,146	2,695	2,942	2,957	3,217	3,561	4,211	4,262	4,508	5,869	5,494
Chingleput	236	228	419	536	390	740	891	1,248	1,964	2,024	2,301	1,580
South Arcot	194	2	31	751	1,635	1,664	2,439	6,025	8,926	6,779	3,742	2,516
North Arcot	19	84	82	69	91	75	248	218	130	30	2,177	651
Total ..	449	314	532	1,356	2,116	2,479	3,578	7,491	11,020	8,833	8,220	4,747
All Diseases.												
Kurnool	3,403	2,684	2,266	2,096	2,261	2,315	2,532	1,787	1,148	1,083	1,187	1,233
Bellary	1,130	776	919	817	489	676	417	568	488	402	940	1,148
Anantapur	335	510	507	833	868	1,252	1,370	2,112	2,697	2,510	2,723	2,384
Cuddapah	237	251	199	435	440	485	608	807	753	1,188	1,598	1,488
Total ..	5,105	4,221	3,891	4,181	4,058	4,728	4,927	5,274	5,086	5,183	6,448	6,253
Chingleput	329	412	612	876	1,071	1,456	2,250	3,236	2,715	2,481	2,539	1,767
South Arcot	428	74	170	1,167	2,002	2,066	2,858	6,360	9,159	6,863	3,773	2,693
North Arcot	132	167	319	437	645	990	1,158	2,079	2,927	2,227	2,309	742
Total ..	889	653	1,101	2,480	3,718	4,512	6,266	11,675	14,801	11,571	8,621	5,202

Statement showing the Mortality amongst Cattle in certain-districts during the year 1888-89.

Districts.	April 1888.	May.	June.	July.	August.	September.	October.	November.	December.	January 1889.	February.	March
Rinderpest, Diarrhœa and Dysentery.												
Kurnool	636	1,220	1,120	1,337	1,421	660	513	309	616	550	552	501
Bellary	811	1,038	720	293	117	116	133	159	351	188	142	121
Anantapur	2,943	2,129	1,401	975	525	546	551	640	582	468	408	623
Cuddapah	1,020	1,118	1,161	819	968	1,010	682	779	799	592	507	902
Total ..	5,410	5,505	4,402	3,424	3,031	2,332	1,879	1,887	2,348	1,798	1,609	2,147
Chingleput	903	860	875	475	685	664	946	1,227	1,273	1,094	545	570
South Arcot	1,090	1,266	1,330	1,472	921	1,071	1,887	2,710	2,410	1,485	1,075	861
North Arcot	926	760	966	722	839	780	885	2,588	1,862	1,068	988	1,038
Total ..	2,919	2,886	3,171	2,669	2,445	2,515	3,718	6,525	5,545	3,647	2,608	2,469
Madura	..	8	22	79	15	600	998	1,594	1,862	3,489	3,028	2,368
Tinnevelly	550	801	932	903	436	438	831	1,099	1,578	1,397	1,389	1,427
Total ..	550	809	954	982	451	1,038	1,829	2,693	3,440	4,886	4,417	3,795
All Diseases.												
Kurnool	1,044	1,643	1,487	1,959	1,856	1,190	1,252	870	1,040	869	1,071	1,107
Bellary	942	1,174	807	521	615	422	411	414	498	376	392	322
Anantapur	3,054	2,178	1,551	1,220	707	843	729	1,092	836	877	637	947
Cuddapah	1,085	1,209	1,263	1,383	1,267	1,436	1,060	1,103	1,305	961	827	1,312
Total ..	6,125	6,204	5,108	5,083	4,445	3,891	3,452	3,479	3,679	3,083	2,927	3,688
Chingleput	1,141	1,101	1,026	717	1,001	923	1,367	2,027	2,153	1,703	943	815
South Arcot	1,182	1,461	1,551	1,553	1,030	1,114	2,124	2,904	2,689	1,669	1,135	988
North Arcot	1,029	1,056	1,152	1,033	1,224	1,037	1,568	3,099	3,498	1,713	1,451	1,259
Total ..	3,352	3,618	3,729	3,303	3,255	3,074	5,059	8,030	8,340	5,085	3,529	3,062
Madura	15	86	49	150	144	773	1,206	1,732	1,971	3,809	3,173	2,624
Tinnevelly	567	861	985	945	486	573	1,187	1,918	2,755	2,553	2,127	1,794
Total ..	582	947	1,034	1,095	630	1,346	2,393	3,650	4,726	6,362	5,300	4,418



Lithographed in Central Survey Office, Madras.
1889



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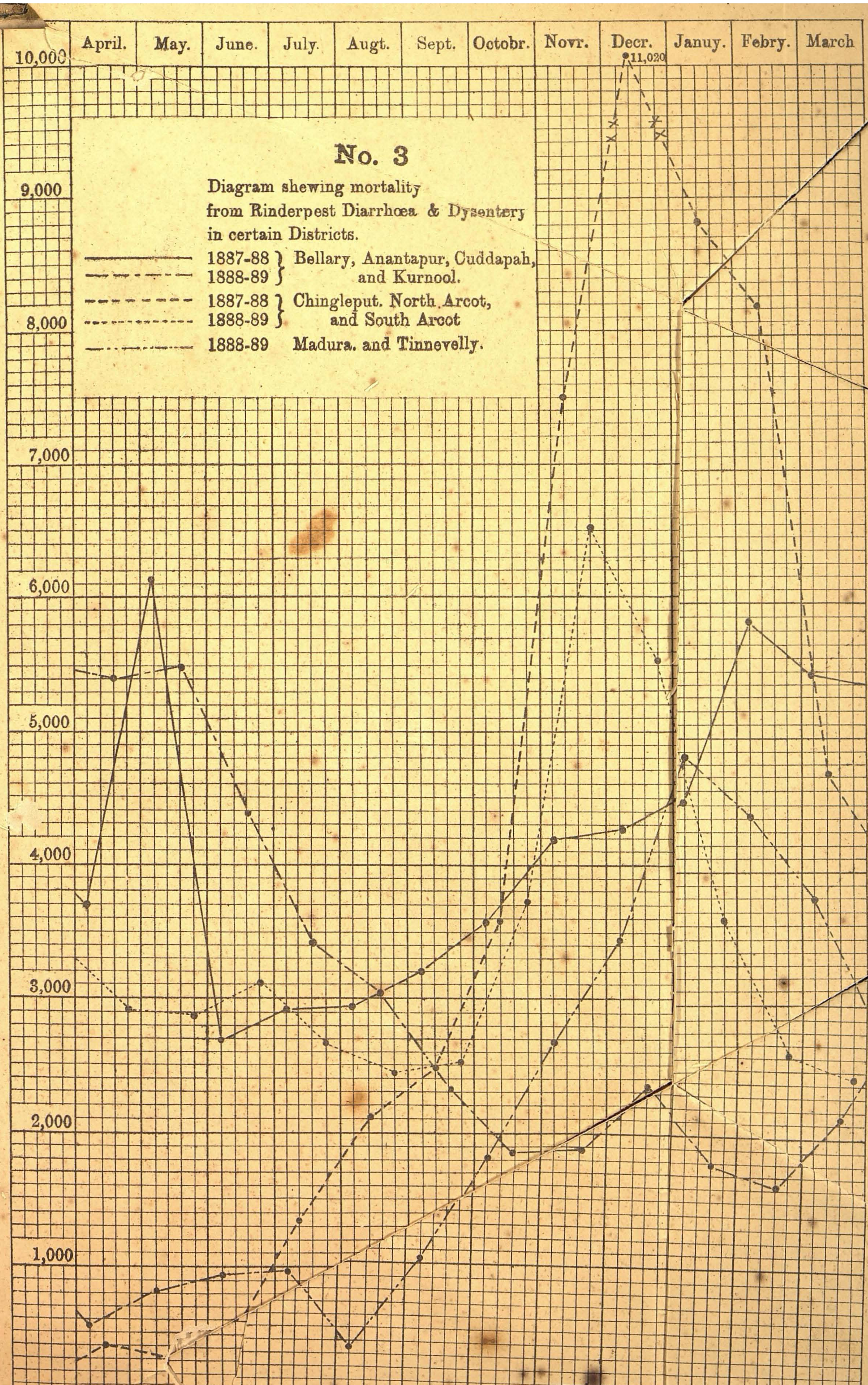

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1889

Order—dated 23rd August 1890, No. 685, Revenue.

Miscellaneous.

His Excellency the Governor in Council has deferred passing orders upon the foregoing review, pending the disposal of the report of the Agricultural Committee, which was appointed in September 1888 to consider the working of the department in the past and to indicate its policy for the future. The orders upon that report, which have now been issued, settle definitely many of the questions brought forward in the present review, and upon the remaining subjects the Government has already expressed its opinions in separate Proceedings. It is, therefore, unnecessary for His Excellency the Governor in Council to do more than notice briefly the principal features of the year under review.

2. The Agricultural Committee already alluded to held several meetings before the close of the year, but its report was not submitted to Government until June 1889. Its investigations resulted in the collection of much information of the highest importance to Indian agriculture and in the exposure of many errors in the policy adopted by the department in the past. Its suggestions have enabled the Government to lay down lines for the conduct of operations in the future, which, it is hoped, will lead to more satisfactory results than have hitherto been obtained.

3. Mr. Benson's famine analysis of the Kurnool district was completed during the year 1888-89, but the Board's review thereon was not submitted to Government until some months after its close. The analysis, although containing a mass of very varied statistics, was condemned by Government as being devoid of practical utility, and a complete change in the *modus operandi* was suggested to the Government of India. That Government has now expressed its general concurrence in the views of His Excellency the Governor in Council on this question, but has intimated that final orders will be deferred until the matter has been further considered at the Agricultural Conference to be held at Simla in October next.

The new village registers ordered by the Board, which, as is stated in paragraph 10, will provide " a system under which a thorough knowledge of the circumstances of every village may be maintained from year to year " will be very useful. The progress made in preparing them, which is reported in paragraph 9, seems to be hardly satisfactory. District officers should have their attention called to the fact that a great portion of the usefulness of these registers depends on their being completed soon. The statistical atlas, also, which is mentioned in the report as possible and which is now under preparation, will supply a great want. His Excellency the Governor in Council does not agree with the proposal put forward in paragraph 10 of the Board's report that annual reports on their ranges, taluks, divisions and districts should be submitted by Revenue Inspectors, Tahsildars, Divisional officers and Collectors. The necessary information should be collected in a condensed form at the jamabandi, and the salient features of the year noticed either in the jamabandi report itself or in a special supplement to be attached thereto.

4. Mr. Caine, professional tobacco curer, whose services were engaged with a view to experiments being conducted in the methods of growing, drying and curing Indian tobaccos, arrived in the Presidency towards the close of 1888. He at once commenced operations, but very little could be effected before the close of the official year. Since then samples of tobacco have been sent to England and the opinions of various specialists obtained: these have been published in the form of a bulletin, and show that, although the tobacco now produced is not of sufficiently good quality to secure a large demand in European markets, yet the promise for the future is certainly encouraging.

5. The results of the pony-breeding operations were fairly satisfactory, and, under the new scheme, it has been decided to retain the Deputy Inspector of Cattle Diseases for the express purpose of supervising these operations. The employment of Mr. Shunker in this appointment up till September 1890 has been sanctioned by the Secretary of State and sanction for his further retention under the new arrangements will now be applied for.

6. In reviewing the report for 1887-88, the Government commented upon the unsatisfactory nature of the account given of cattle-diseases and their prevention. The present report contains much fuller information on these points. As regards general mortality, the Commissioner admits that the statistics do not accurately represent the real facts, but he considers that the number of deaths shown as due to disease may be accepted as fairly correct. In paragraph 52 of the report, a table is given to illustrate the mortality from all diseases amongst horned cattle. From this it is observed that in no district did the number of deaths exceed 3·5 per cent. of the total stock, so that the loss was not proportionately heavy ; but the Commissioner considers that the percentage loss is not the standard by which these losses should be gauged, the total loss and the losses in particular villages being a fairer criterion. The total mortality from disease in 1888-89 was 13 per cent. in excess of that for the former year and amounted in all to 196,264 head of cattle, nearly three-fourths of which died from rinderpest : in addition to the above 29,378 sheep, goats, horses and ponies are reported to have died from various diseases, and the total loss to the ryot community is estimated at nearly 20 lakhs of rupees. The number of deaths from rinderpest alone (including the deaths from diarrhœa and dysentery which the Inspector is "perfectly certain" should be taken under that head) was no less than 143,720. The Commissioner then examines in detail the statistics of disease in various districts and groups of districts, but he admits that the figures do not afford much aid in tracing out the conditions, which govern the rise and fall of the evil.

7. The Stock Inspectors treated 8,000 sick animals during the year, and of these 50 per cent. are said to have recovered, but in more than 2,000 cases the results of treatment were unknown. The work of these men was not in all cases satisfactory, but the difficulties they have to encounter are detailed by Mr. Hazelton in his report, printed with the Board's Proceedings under disposal, and their isolated positions rendered close supervision of their work impossible.

8. The question of cattle-disease prevention has been fully discussed in the order on the report of the Agricultural Committee, and it has been decided to abolish this branch of the department for the present. It is not necessary to recapitulate here the arguments adduced in that order, but His Excellency the Governor in Council would add that a careful consideration of the present reports and statistics confirms him in the opinion that any attempt to directly combat cattle-disease is, in the existing state of feeling amongst the farming classes, practically useless.

9. The remaining subjects dealt with in the Board's report do not call for any special notice now. The results achieved by the department during the year under review cannot be looked upon as entirely satisfactory, but this was, to a great extent, the fault of the general policy rather than of the actual working, and His Excellency the Governor in Council trusts that the new lines, on which the efforts of the department are to be directed in future, will ensure results more beneficial to the agricultural classes and more commensurate with the expenditure involved.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Commissioner of Revenue Settlement, Land Records and Agriculture.
" Commissioners of Land Revenue.
Copy to the Accountant-General.

Resolution—dated 25th September 1890, No. 290.

Communicated to Collectors whose special attention is invited to the second part of paragraph 3 of the Government Order.

2. The importance of the early completion and correct maintenance of the famine analysis registers has been frequently pointed out to Collectors, and the Board looks to the energetic co-operation of these officers in carrying out this work.

(A true Copy and Extract.)

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

(True Copy.)

(Signed) N. KRISHNASAMI MUDALIAR,
Acting First Assistant.

To all Collectors.

Exd. W. J. Lewis.